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MERCK'S BULLETIN

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A Periodical Record of New Discoveries, Introductions, or Applications of Medicinal Chemicals.

Moved by Professional — not Business — Interest.

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HOM-ATROPINE (Oxy-toluyl-tropeine), an *Artificial Alkaloid* derived from ATROPINE;—*quite as powerful a Mydriatic* as the latter; but with *less* disturbance of the *Accommodation*, with *much more rapid Recovery* from the Mydriasis, and with *hardly any generally Toxic effect.*—(The HYDROBROMATE its usually employed Salt.) 1

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THE MYDRIATIC ALKALOIDS

of the Solanaceæ.

Also: THEIR NARCOTIC AND OTHER USES;

as Hypnotics, Sedatives, etc.

[CONCLUDED FROM DECEMBER NUMBER OF VOLUME SECOND.]

N.B.—*The previous divisions of this article relate to* ATROPINE, HYOSCYAMINE, *and* HYOSCINE.

4.—Hom-atropine.

(*See* "MERCK'S INDEX", p. 69!)

Prof. LADENBURG, of KIEL UNIVERSITY, in the course of his researches on the *Synthetic Production of Alkaloids*, obtained a series of **Artificial Alkaloids** by the action of HYDROCHLORIC ACID on certain Salts of TROPINE (*itself a Fractional Derivative of* ATROPINE!).—To the Group of Alkaloids thus obtained he gave the collective designation of *TROPEINES*.

Thus, by treatment with HYDROCHLORIC ACID, the following, among others, were produced:

From TROPINE TROPATE: —**Atropine**,—in every respect *identical with the Natural Alkaloid;*

From TROPINE SALICYLATE: —**Salicyl-tropeine**,—a weak poison, *devoid of action on the Pupil;*

From TROPINE PHTALATE: —**Phtal-tropeine;**

From TROPINE MANDELATE: —**Hom-atropine** = **Oxy-toluyl-tropeine** [$C_{16}H_{21}NO_3$].

Of all these, THE LATTER is by far the most interesting substance, as its peculiar **Action on the Eye** renders it *therapeutically serviceable*. The experiences hitherto had with it admit of no doubt as to its ELIGIBILITY FOR OPHTHALMOLOGY.

—HOM-ATROPINE, according to VÖLKERS and E. GOETZ (1), **Dilates the Pupil** *just as energetically and largely* as ATROPINE does; but it *has less of Paralyzing effect* on the ACCOMMODATION, and—which is of greatest importance—the RECOVERY FROM THE MYDRIASIS *is far more rapid* than with ATROPINE!—While ATROPINE DILATATIONS—even when induced by *very weak* solutions—continue for several days (up to a week);

(1) Inaugural Dissertation; Kiel, 1880.

the HOM-ATROPINE DILATATION *begins to diminish after a few hours' duration;* and in the course of 24 hours, usually, every trace of it has disappeared.

In addition hereto, HOM-ATROPINE — *unlike* ATROPINE — is a *very weak Poison*, and does *not* — as ATROPINE often does — superinduce *Cutaneous Eruptions.*—In consequence, it *may be used* also on SUSCEPTIBLE INDIVIDUALS,— even on those having an *Idiosyncrasy* against ATROPINE!

HOM-ATROPINE will prove its usefulness especially for EXAMINATIONS OF THE FUNDUS OCULI, etc., as it permits of the Eye being used again within a very brief period.

—HOM-ATROPINE, PURE ALKALOID, forms limpid, regular *crystals*, whose form has not yet been determined. Its **Salts** with HYDROCHLORIC, with HYDROBROMIC, and with SULPHURIC ACID are white, and crystallize well. For Therapeutic practice,

Hom-atropine Hydrobromate

appears to be most eligible.—This Salt forms white, crystalline leaflets, and is *soluble in 10 parts of Water.* The Solution is quite *permanent.* The Salt is *not hygroscopic!*

——*The more recent* THERAPEUTIC AND PHYSIOLOGIC EXPERIMENTS were made principally with the **Hydrobromate of Hom-atropine.**— SCHWEINITZ and HARE (2) found that 0.04 gramme [$^2/_3$ grain] of this Salt, administered to Frogs, first *alters* the RESPIRATION to the "CHEYNE-STOKES rhythm", then *arrests* it wholly; this is succeeded by a *Tetanic* condition; and after that by a *Paralysis*, leaving, however, the PERIPHERAL Nerves and Muscles *untouched.*—The HEART-MOVEMENT of Warm-blooded and Cold-blooded animals is directly *retarded.* Also in HUMAN PATIENTS, the OPHTHALMOLOGIC applications were found to entail a *Diminution* of the PULSE-RATE.

JACKSON'S researches (3) confirm generally those of VÖLKERS and GOETZ. According to JACKSON, *strong Solutions* (4–5%) induce a *Burning sensation* on the Conjunctiva, of five minutes' duration, *without* any considerable Rubescence being developed there; on the other hand, even *weaker* solutions will, after 3–10 minutes, induce a marked *Congestion* of the Vascular Zone bordering the Cornea, and also of the recondite vessels of the Sclera,— the same as after the Instillation of ATROPINE.—

(2) *American Medical News*, 1887; Dec., p. 731.
(3) *American Medical News*, 1886; July, p. 88.

After Instillations of large doses of HOM-ATROPINE, its *bitter taste* becomes perceptible,—*but not* the Dryness of the Pharynx, which follows the use of ATROPINE.

Directions for Instillation.

For Ophthalmologic purposes, a *One-per-cent* SOLUTION of the HYDROBROMATE OF HOM-ATROPINE is usually instilled. The Instillation is *repeated*, when necessary, at *intervals* of 5–10 minutes.

Aconitine;—**a Reliable Method of Prescribing same.**—Notoriously, *The Various Brands* of ACONITINE in the market *exhibit very marked differences* in the STRENGTH OF THEIR PHYSIOLOGIC ACTION; so that the observance and expression of a **Rigorous Distinction between Different Makes and Grades** is a matter of most serious importance in PRESCRIBING.

It is, therefore, very opportunely that Dr. VAN RENTERGHEM (4), to whom Medical Literature already owes a most excellent POSOLOGICAL (Dosimetrical) COMPENDIUM, has taken the pains of subjecting several ACONITINES *of Various Origins* to a series of EXACT THERAPEUTIC TESTS.

Dr. VAN RENTERGHEM experimented with the following kinds:

Aconitine, crystallized, [MERCK],—(*See* "MERCK'S INDEX", p. 9!),—
" " [DUQUESNEL],
Aconitine, amorphous, [MERCK],—(*See* "MERCK'S INDEX", p. 9!),—
" " [FRIEDLÄNDER],
" " [CHAUTENAND], (*Granules*).

He used *his own person* as an object for the experiments.

The FIRST SUBJECTIVE PHENOMENA discernible appeared *about* 12–15 *minutes after the Ingestion* of the respectively "SUFFICIENT DOSE" (*see below!*). They consisted of a sensation of *Vermiculation or Formication in the cheeks*, and of *Prickling or Tingling in the point of the tongue.*—Both sensations *disappeared after one or two hours*, if the Dose was not repeated.

—The "SUFFICIENT DOSE" *for this effect* was found to be:

"Of the two CRYSTALLIZED ACONITINES [MERCK or DUQUESNEL]: *from 0.25 to 0.5 milligramme* [1/250 to 1/125 grain];—

"Of the AMORPHOUS ACONITINES of MERCK and CHAUTENAND: *from 10 to 15 milligrammes* [1/6 to 1/4 grain];—

"Of FRIEDLÄNDER'S ACONITINE: *from 200 to 300 milligrammes* [3 to 4 1/2 grains];"—

(4) *Nederl. Tijdschr. voor Geneesk.*, 1889; p. 9.

thus showing A RANGE OF COMPARATIVE DEGREES OF POTENCY, *as from 1200 down to 1;*—that is, THE LIKE EFFECT being secured from THE STRONGEST PREPARATION by *A Dose Only* $^1/_{1200}$ *to* $^1/_{800}$ *the Size* of those required of THE WEAKEST PREPARATION tested under the name of "ACONITINE"!

VAN R. has repeatedly taken the following quantities of the above-mentioned various "ACONITINES" in the course of twelve hours, in divided doses, *without experiencing any grave symptoms* in consequence:

ACONITINE, CRYSTALLIZED, [MERCK or DUQUESNEL]: *3–4 milligrammes* [$^1/_{20}$–$^1/_{16}$ grain];—

ACONITINE, AMORPHOUS, [MERCK or CHAUTENAND]: *50–60 milligrammes* [$^3/_4$–1 grain];—

ACONITINE FRIEDLÄNDER: *1 gramme* [15 grains].—

During the experimental period, Dr. v. R. attended to his practice,—constantly enjoying calm nocturnal sleep, from which he awoke in the morning *free from any symptoms of* ACONITINE *Toxication.*

——FOR HIS PATIENTS, Dr. VAN RENTERGHEM has, during a number of years, *regularly prescribed* ACONITINE by the following

Formula of Prescription:

"ACONITINE CRYSTALLIZED *MERCK* (!) 0.005 gramme [$^1/_{12}$ grain]; Glycerin 1 drop; Gentian Extract *and* Honey, about *equal* quantities of *each*,—*sufficient* to make 200 Pills of *15 milligrammes*' [$^1/_4$ grain's] *weight each!*"

Although the medicament has been prescribed by him in this form for a long time, *Not a Single Instance of Medicinal Poisoning* thereby has come to his notice.

—*A Confusion of the Various Sorts* of ACONITINE by the Compounding Druggist is NOT LIABLE TO OCCUR when the above EXACT MODE OF DESIGNATION is used in prescribing.

The PILLS made by the above-quoted *Formula* are *small*, and completely *soluble.*

According to VAN RENTERGHEM'S copious experience, the FORM and COMBINATION here recommended *are the safest known* for the exhibition of this heroic medicament.

Jambul (*Syzygium jambolanum*, DE CANDOLLE;—or: *Eugenia jambolana*, LAMARCK),—**Powder** and **Fluid Extract** of **Seed** or **Bark.**—The SYZYGIUM JAMBOLANUM—a tall tree, native in the American and

Asiatic tropics, and belonging to the *Eugenoideæ*, a subdivison of the *Myrtaceæ* — is highly valued by the aborigines of Southern Asia for the **Medicinal virtues** of its BARK and of its hip-like FRUITS (by them called "JAMBUL") in **Diabetes mellitus.**

LASCELLES SCOTT (5) was the first to make a searching investigation of this drug, and to observe the peculiar *Retarding action* of JAMBUL on the *Diastatic Fermentation of Starch.*—He found, for instance, that a certain proportion of DIASTASE added to a certain quantity of STARCH would saccharify 44.8 % thereof in 50 minutes; while, under the same conditions, but with a small quantity of JAMBUL added, *only* 19.6 % *were saccharified!*

W. ELBORUC (6) and W. H. MORSE (7), having tested JAMBUL in **Therapy,** succeeded in procuring a *Reduction of the Diuresis and also of the Sugar in the Urine* by administering 0.25 gramme [4 grains] of the POWDERED FRUIT, 3 times per day.

Lately, Dr. GRÄSER, of Bonn (8), published an interesting essay on the action of JAMBUL EXTRACT (FLUID!) in *Artificially Induced Diabetes!* —This Diabetes was induced according to VON MERING'S method (9), by giving to young Dogs from 2 to 5 grammes [30–75 grains] of PHLORIZIN *each, daily.* Under this treatment, the *Urine* of the animals showed from 6 to 12.5 grammes [90–190 grains] of *Sugar* per day. These quantities of Sugar in the Urine were, however, *at once reduced* to *from one-half to one-tenth* of their previous magnitude, when some JAMBUL EXTRACT was administered along with the PHLORIZIN.

— On the strength of these experiments, Dr. GRÄSER concludes that this JAMBUL EXTRACT, given in sufficient dose (say, up to 18 grammes [4½ drams] *daily*,— divided into 5–6 single doses), *will considerably reduce, or perhaps wholly suppress, the Mellituria in Phlorizin-Diabetes;* and, furthermore, that this EXTRACT, even in large Doses, induces *No Untoward Accessory Effects!*

— —The above-quoted results of Dr. GRÄSER'S researches suggest the use of JAMBUL EXTRACT *also in "Natural" Diabetes;* all the more so, as the report represents it to be *Innocuous to the Animal Economy!*

(5) *British and Colonial Druggist*, 1887.
(6) *Pharm. Journal and Transactions*, 1888; p. 921.
(7) *Therapeutic Gazette*, 1887.
(8) *Centralblatt für Klinische Medizin*, 1889; No. 28.
(9) MERCK'S BULLETIN, 1889; p. 8.

Keratin is the *Natural Horny Substance* of the Epidermis, Nails, Claws, Hoofs, Hair, Feathers, Horns, etc.—**Keratin for Pharmacological Use** is mostly obtained from Goose-quills, as being most readily capable of purification.—PURIFIED KERATIN is soluble in Acetic Acid, in Ammonia-Water and other Alkaline fluids; and *insoluble in Pepsin or Hydrochloric Acid.*—[The remark "PEPSINIZED" (as applied to KERATIN in "MERCK'S INDEX") refers, therefore,—*not* to any admixtion of Pepsin with it; *but* to the mode of its *Purification by Pepsin*, which extracts from the NATURAL, or CRUDE, KERATIN some soluble matters that must be removed in order to secure its entire **Insolubility in the Gastric fluids.**]

—**The Pharmacological Use of it is,—To Coat Pills,** so that *they shall not be dissolved by the Gastric fluids* (Insolubility in Pepsin or Hydrochloric Acid,—as above remarked!),—thus PROTECTING THE STOMACH from aggression by the Medicinal Agents employed in the Pills,—*but shall be dissolved by the Alkaline fluids of the Intestines.*

It matters not what Medicaments are used *in the Pills*, provided they be worked-up, *and maintained*, SUFFICIENTLY DRY to keep their contents from mingling with, or injuring, the KERATIN COATING.

The Pills, therefore, must *not only* contain NO APPRECIABLE MOISTURE; *but, also*, NO HYGROSCOPIC SUBSTANCES (such as most Vegetable Excipients!): for *Evaporation* in the one case might cause the Pills to *shrink*, and *Absorption of Moisture* in the other might make them *swell*,—thus in either case *destroying the continuity* of the KERATIN COATING, and thereby foiling its purpose.—The BODY OF THE PILL-MASS may consist of a *Mixture, by fusion*, of 1 part YELLOW WAX with 10 parts TALLOW or CACAO-BUTTER. (KAOLIN, BOLE, or CHARCOAL-POWDER may be employed as *Excipients*.)

The Pills, when made from a Mass prepared on the above principle and duly medicated, are, according to Dr. BERNHARD FISCHER, ([10]) to be immersed in molten CACAO-BUTTER for a moment, and then rolled in GRAPHITE-POWDER to smooth them; then they are coated with KERATIN *by rolling them* in a solution thereof *until the solution is evaporated*,—*repeating* this process (perhaps as many as 10–12 times) until the Coating is *thick enough*. The *Sufficiency* of the Coating may be easily determined by having a few TRIAL PILLS with, say, $^3/_4$ grain of CALCIUM

[10] "Die Neueren Arzneimittel", II. Ed.; Berlin, 1888— Julius Springer,—p. 199–205.

Sulphide in each, along with the lot to be coated, and having these of different size from the others, so as to distinguish them.—If one of these Calcium-Sulphide Pills be taken, and *No Eructation of Sulphureted Hydrogen takes place* within a few hours thereafter, it may safely be assumed that the *Coating is Sufficient.*

In preparing the Pill-mass, *Fatty medicaments* may be united with molten Wax, or a Cerate; while *Aqueous Infusions* or *Liquid Extracts* may be thickened-up with Acacia- or Tragacanth-powder, and further, if needed, with some Vegetable or Mineral Powder *as little apt to swell in Water* as can be selected.—A Cerate *may still be added*, then, *if it be* compatible and miscible with the rest of the Mass.

—The Solution of Keratin for Pill-coating is made by either of the following methods:

I.—Ammoniacal Solution: — 7 parts Keratin; — *digest* (*if need be*,— slightly warmed!) in a *mixture* of 50 parts 10-% Ammonia-water and 50 parts 60-% Alcohol.

II.—Acetated Solution: — 7 parts Keratin; — *digest* (*if need be*,— slightly warmed!) in 100 parts Glacial Acetic Acid.

—The *Ammoniacal Solution* would be adapted for Pills containing: Pancreatin; Trypsin; Bile; Iron Sulphide; etc.

—The *Acetated Solution* would be adapted for Pills containing: Salts of Silver, Gold, Mercury; Iron Chloride; Arsenic; Creasote; Salicylic Acid; Hydrochloric Acid; etc.

In the case of *Chemically Neutral Substances*, compatible with *either Solution*,— as for instance, Naphthalene,— it is *immaterial which* Solution is employed.

— —The **Keratinized Pill** (or: "**Ileac Pill**"— *see* "Merck's Index", p. 80!) is, according to Unna, to be considered *an eligible vehicle* for the exhibition of the following Five Classes of Medicaments: —

"***1st,***—*Such as*, in long-continued medication, *irritate the Mucous Membrane of the Stomach;* f. i.,—Arsenic, Salicylic Acid, Creasote, Chrysarobin, Quinine-preparations, Copaiva, Cubebs, Digitalis, Iron-preparations (especially Ferrous Iodide and Ferric Chloride), Opium, Mercury-preparations (especially Mercuric Chloride and the Iodides), Phosphorus, Tartar Emetic, and all the Anthelmintics; —

"***2nd,***—*Such as impair the process of Gastric Digestion*, by forming Insoluble Precipitates with Pepsin or with the Peptones; f. i.,—Tannin, Alum, Lead Acetate, Bismuth Nitrate, Silver Nitrate, Corrosive Sublimate; —

"**3rd,**—*Such as are either rendered inert, or decomposed in an undesirable manner, by the Gastric Juice;* f. i.,—ALKALIS, SOAP, BILE, CALCIUM SULPHIDE, IRON SULPHIDE, CHARCOAL, SILVER NITRATE, FERROUS IODIDE, MERCUROUS IODIDE, MERCURIC IODIDE;—

"**4th,**—*Such as are intended to reach the Lesser Intestine without first undergoing Dilution;* f. i.,—BRAYERA (Kousso), MALE-FERN Extract, SANTONIN in *Lumbrics*, SILVER NITRATE, LEAD ACETATE, TANNIN in *Intestinal Ulcerations*, CHARCOAL, SOAP, ALKALIS, BILE;—

"**5th,**—*Such as are intended to exercise an indirect effect*—WITHOUT LOCAL ACTION—*on Gastric Complaints;* f. i.,—IRON, QUININE; ARSENIC in *Dyspeptic Anemia*, *Cardialgy*, and *Ulcus rotundum*."

GATHERED FORMULAS.

INDEPENDENT of the TEXT of the BULLETIN.

1.—"EXALGIN" (*Methylated Antifebrin*) in Neuralgias ([11]).—[JOUISSE ([12]).]

—DRAUGHT.—

(*Keeps* very well, and is of *Agreeable Taste.*)

"EXALGIN"	2 grammes	[*30 grains*].
Dissolve in:		
Tincture Bitter-Orange Peel	5 "	[*1 1/2 fl.dr.*].
Add:		
Syrup Orange-Flowers	30 "	[*6* "].
Water, distilled	120 "	[*4 fl.oz.*].

(Each *Tablespoonful* contains 0.2 gramme [3 grains], and each *Teaspoonful* 0.05 gramme [3/4 grain], of "EXALGIN".)—*Take 3–4 Tablespoonfuls per day!*

2.—SURFACE DISINFECTANTS in Psoriasis.

—PAINT.—

PYRO-GALLIC ACID, CHRYS-AROBIN (the *so-called* "Chrysophanic Acid")	... *each* 0.75 gramme [*12 grains*].
Collodion	90 grammes [*3 1/2 fl.oz.*].
Stronger Ether, Alcohol	... *equal parts, sufficient* for Solution!

Take a bath every *third* day; and *after* it *paint* the affected parts with the above SOLUTION!

(11) *See, also:* MERCK'S BULLETIN, 1889; p. 55, 56.

(12) *Nouveaux Remèdes*, 1889, p. 33.

STRAY ITEMS.

No. 5.

EIKONOGEN.

A NEW UNIVERSAL DEVELOPER FOR PHOTOGRAPHIC DRY PLATES AND BROMIDE PAPER.

"EIKONOGEN", a *Derivative of* ANILINE, of *Remarkable Reducing Power* on SILVER SALTS, was discovered by Dr. ANDRESEN, of Berlin, Germany. *It promises to supplant all other Developing Agents yet proposed.*

It is a **Substitute for** PYROGALLOL, HYDROQUINONE, OXALATE OF POTASH, and SULPHATE OF IRON, and, in fact, *for all chemicals that reduce the* SILVER SALTS. It is also **The Cheapest Reducing Chemical** now on the market.

It will keep indefinitely in the dry state *in any climate, provided* it is not injured by the fumes of AMMONIA, *with which it must not come in contact!* It is in the form of yellowish crystals, which, in WATER, make a *perfectly clear Solution.*

The **Advantages** claimed for it, and *which we have found to be substantially true by experiment*, are that it produces **a bluish-black-colored image,** depositing in the Film a very delicate precipitate, which, in consequence, **brings out the finest details** to a degree that is surprising. *The structure of the Picture Film is*, therefore, *much more compact and finer-grained* than it is possible to obtain with the PYRO or FERROUS-OXALATE DEVELOPER. The EIKONOGEN DEVELOPER operates regardless of the temperature. Hence it is **adapted for use in Hot or Cold Climates.**

It is *Non-poisonous, perfectly Harmless, Does not Stain the fingers, Does not Discolor or Deteriorate* when exposed to the air in a tray or graduate, *always Keeps Clear, will Keep Mixed* in a well-stoppered bottle, ready for use, *for over a month*, and **acts so quickly and powerfully** that the *Ordinary Exposures* given for PYRO Development *may*, it is said, *be reduced one-half.*

But its Pre-eminent Quality, in addition to its Great Reducing Power, is that it **does not stain the film in the least,** even after repeated use, and hence, a given quantity of SOLUTION *may be used over and over again*, until its developing power ceases.

The *Stainless Nature* of the EIKONOGEN DEVELOPER adapts it admirably for the production of LINE-WORK NEGATIVES ON DRY PLATES, for the development of LANTERN SLIDES, and for POSITIVE PRINTS on GELATINO-BROMIDE PAPER or PORCELAIN. So satisfactory is its working *on Paper* that we have substituted it for the FERROUS-OXALATE DEVELOPER. Its particular merit is that *Every Copy on Paper is Beautifully Clear in the High Lights*, which is a point of great importance in making BROMIDE ENLARGEMENTS.

The usual ALUM and FIXING BATHS may be employed:

We notice that the EIKONOGEN DEVELOPER *permeates the Film more evenly and rapidly than with* PYRO, and acts with an energy which is astonishing. **For Under-exposed or Instantaneously exposed Plates** *it is especially adapted*, and will make the production of such pictures a pleasure.

We have developed in *Seven Ounces* of SOLUTION *Twelve* 10-by-12 *Plates* in succession, *without replenishing* it. The color becomes yellow when it is exhausted. It is probably unnecessary to rock the tray.

We are glad to know that EIKONOGEN is to be supplied to the Trade here in large quantities. As a UNIVERSAL DEVELOPER FOR DRY PLATES, *it stands at the head!*

[*Scientific American.*]

MULTUM IN PARVO!

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Aluminium Aceto-tartrate — [*See* "MERCK'S INDEX", p. 12.] — comes in transparent, very faintly yellowish, crystalline-looking granules, *soluble in Water*, but insoluble in Alcohol, Ether, or Glycerin.

Its USE IN THERAPY is due to its **Caustically Astringent** and **Energetically Disinfectant** properties, which were first observed and tested in 1885 by SCHÄFFER, of Bremen, and by LANGE, of Copenhagen.

Recently, Dr. HOLSTE ([13]) communicated the following observations made by him on the action of this Double Salt in **Nasal Diseases**:

> "In Ordinary **Nasal Ulcerations** (in which this Medicament was first employed), it is *preferably mixed* with BORIC ACID or some *Indifferent Substance*, as otherwise it may be too irritating!
>
> "In the above-indicated COMBINATION, it acts *Hydrotically* on **Polypi**,—causing them to shrivel.—ALUMINIUM ACETO-TARTRATE is also of excellent service, in combination with the GALVANO-CAUTERY, for *Destroying Polypus-roots*.
>
> "In **Ozena**, a TAMPON charged with an AQUEOUS SOLUTION OF ALUMINIUM ACETO-TARTRATE is introduced into the Nostril and left there for a brief period.—INSUFFLATIONS of this Medicament were also employed with good effect,—showing Cessation of the *Fetor* and Abatement in the *Scab*-formation.
>
> "In **Chronic Hypertrophic Rhinitis**, a *Rapid Subsidence of the Swelling* was brought-about by the following treatment:—INSUFFLATIONS of ALUMINIUM ACETO-TARTRATE *with* BORIC ACID, *equal parts, or 1 to 2;—alternating* with TAMPONS of BORAX GLYCEROLATE and with the GALVANO-CAUTERY.
>
> "In almost all the cases under observation, the patients speedily became reconciled to the Medicament; which soon afforded them *Notable Subjective Relief*, while *Promoting a Cure*."

—MICHAELIS ([14]) prescribes the following:—

In **Rhino-pharyngitis**, *with Tendency to form Scabs*:

—ERRHINE.—

SOLUTION of 1 part ALUMINIUM ACETO-TARTRATE in 3 parts of Water.—*Use one Tablespoonful thereof in a Pint of Water*, for *Snuffing-up into and through the Nose*.

—The same authority also recommends a FIFTY-PER-CENT SOLUTION of ALUMINIUM ACETO-TARTRATE as a *Wash* in **Chilblains**.

([13]) *Berliner Klinische Wochenschrift*, 1889; No. 30.

([14]) "Die Neueren Arzneimittel", 1889.

Cocaine Phenate (*Carbolate*) — [*See* "MERCK'S INDEX", p. 38.] — forms a slightly colored substance of *thick honey consistency*, which readily melts when heated, and whose percentage of COCAINE ALKALOID is about 75. It is well *soluble* in 50-% Alcohol. The Solution has a faint odor of Carbolic Acid.

G. VIAU ([15]) has reported on its employment, by himself, as a **Local Anesthetic in Dental Operations** (86 cases). It was administered HYPODERMICALLY, and produced *Complete Topical Anesthesia* WITHOUT subsequent derangement of the general well-being.

VIAU proposes that an ALCOHOLIC SOLUTION of the Salt be used, in the strength of 1 in 1250 [0.08-% Solution]; and that hereof *1 cubic centimeter* [16 minims] be taken-up with a Hypodermic Syringe; *one-half this Dose* being injected into the *Labial surface*, and *the other half* into the *Palatal or Lingual surface*,—at points about 2–3 millimetres [$^1/_{12}$–$^1/_8$ inch] distant from the *Crown*, and from the termination of the *Root*.

In the *moment of removal* of the Syringe-point from the wound, the orifice must be *closed by the finger*, to prevent egress of the injected fluid. Then the neighborhood of the punctures is to be dried by means of Absorbent Cotton, and the Mouth is to be rinsed. *After 3 minutes'* lapse the proposed scene of operation will be *anesthetized*. The EXTRACTION, etc., is best performed *after 5 or 6 minutes'* lapse.

—*Quite recently*, the eligibility of COCAINE PHENATE *for other uses than the above* has been made the subject of extensive research by Dr. VON OEFELE, who (although his experiments were not yet brought to a close at the time) deemed it important enough to communicate ([16]) the following preliminary results on its uses as an **Anti-Catarrhal** and as a **General Topical Anodyne**, *as far as they are determined with certainty:*

1.—**Nasal Catarrhs**, and **Difficulty of Hearing** consequent on **Tubal Catarrhs**, are broken-up by an *Errhine Powder* consisting of 5–7 parts COCAINE PHENATE and 95–93 ANTIFEBRIN.—*Dose:* 0.03–0.05 gramme [$^1/_2$–$^3/_4$ grain].—(*To be snuffed.*)

2.—**Gastric Catarrhs** are very favorably influenced by *Internal Doses* of 1 gramme [15 grains] *per day* of the ANTIFEBRIN-COCAINE-PHENATE COMBINATION just described.—In **Chronic** cases, this dose is administered *every second day*.

—For INTERNAL ADMINISTRATION, it is necessary to exhibit this Medica-

(15) *Nouveaux Remèdes*, 1887; p. 192.

(16) [By Letter to E. MERCK.]

ment in *Gelatine Capsules*, in order to prevent its contact with the Mucous membrane of the Mouth.

3. — **Conjunctival Catarrhs** are broken by 1–2 milligrammes [$^1/_{64}$–$^1/_{32}$ grain] of *pure* COCAINE PHENATE, *daubed-in* between the edges of the Eyelids.—The same object is compassed by *Instillation* of 1 drop of a 10-% *Solution* of COCAINE PHENATE in PHARMACOPEIAL ALCOHOL; or by *Instillations* (about 5 times at 2 minutes' intervals) of a 1-% *Solution* of this Salt in 30-% ALCOHOL.

4. — **Catarrhal Angina** and **Laryngeal Catarrhs** are broken by once or twice *Painting* with the last-named *Solution*; — while in the LARYNGEAL CATARRHS the same purpose may also be accomplished by *Insufflating* a few Quillfuls of the previously-described ANTIFEBRIN-COCAINE-PHENATE COMBINATION.

5. — *Painting* or *Rubbing* with ONE-PER-CENT SOLUTION of COCAINE PHENATE in 30-% ALCOHOL are eligible for the treatment of **All Local Pains.**— In OBDURATE PAINS, with FREQUENT USE of the Medicament,—*Toleration* being apt to supervene,—it is advisable *gradually to increase the strength of the Solution;* employing correspondingly *stronger* ALCOHOL, or even ETHERIZED SPIRIT, for the Solvent.

Iodole ([17]), **"atomizable"** (*non-conglutinative;* FINE CRYSTALLINE POWDER), **for Insufflations** in RHINO-PHARYNGO-LARYNGOLOGICAL AFFECTIONS, ETC. ([18]).

Further communication on this subject was made, *since its last mention in this journal* [as here noted], by Dr. Max SCHÄFFER of Bremen ([19]), as follows:

"The efficacy of IODOLE POWDER *for Insufflations* was formerly, as I noticed, grievously impeded by its *conglutinating into small nodules* already in the Cannula of the Apparatus,—thus rendering impossible a uniform distribution of the Powder over the Mucous membranes. When the Powder once had reached the Mucous surface, its tendency to conglutinate became evident in a still augmented degree. Hereby *the effect of the Medicament was rendered almost wholly nugatory;* for the aggregations formed by it produced a marked mechanical irritation, which in turn stimulated the secretions of the parts treated; in consequence whereof the Powder was simply and speedily *swept away* by the fluids of the Nasal and Rhino-pharyngeal cavities, or *coughed away* when applied to the Larynx or Trachea.

([17]) MERCK'S BULLETIN, 1888; p. 17.
([18]) MERCK'S BULLETIN, 1889; p. 37.
([19]) *Therapeutische Monatshefte*, 1889; June.

"After trying in vain to remedy this difficulty by mixing the IODOLE with finely crystallized BORIC ACID, I received from E. MERCK in Darmstadt A NEW FORM OF IODOLE, OF EXTREMELY FINE CRYSTALLINE TEXTURE, *which fully obviates the troubles described.*

"It *spreads uniformly* over the assufflated surfaces; and, owing to its well-defined and sharp crystalline form, *it fairly penetrates into, and fixes itself in, the upper stratum of the Mucous membrane,*—thus affording the secretions ample time *to develop the Medicinal action* of the IODOLE by *Resorption.*

"In a large number of TEST-EXPERIMENTS with **Nasal Diseases** (including Ozena atrophicans, Ozena syphilitica, and Purulent affections of the Bone);—also with **Affections of the Tonsils, of the Larynx; Tubercular Ulcerations; grave Tracheal troubles,**—I have satisfied myself absolutely that the CRYSTALLIZED IODOLE *actually gave the effects to be expected from* IODOLE, which I had missed with the older forms of IODOLE—simply because these were entirely or partially incapable of Resorption."

Salol in Asiatic Cholera.—SALOL (*Salicylate of Phenol; Phenylic Ester of Salicylic Acid*)—[*See* "MERCK'S INDEX", p. 124.]—has been too well known, in its general properties, for the last two years, to need more than a very brief introductory characterization here.

It is a white crystalline powder, almost *insoluble in Water*, but soluble in Alcohol, Ether, Benzene, and Fatty Oils, nearly tasteless, and possessing a very faint aromatic odor.

It is finally *eliminated from the organism*, principally through the Kidneys, in the form of SULPHO-CARBOLIC and URO-SALICYLIC ACIDS,—imparting to the discharge the characteristic dark-green hue of "Carbolic Urine".

It may quite well be *administered* in Simple POWDER-form, *with or without* SUGAR.

It is composed of about 40 % of PHENOL (Carbolic Acid) and 60 % of SALICYLIC ACID.—The **peculiarity of its Chemical Behavior** *when ingested into the Animal* (or Human) *organism*, whereon is based its **Therapeutic usefulness,** is the same as has already been described in these pages for its younger congeners: BETOL ([20]), and the three CRESOL SALICYLATES ([21]);—to wit,—

([20]) MERCK'S BULLETIN, 1888; p. 44.

([21]) MERCK'S BULLETIN, 1889; p. 31.

(**A.**) *Its Almost Perfect Insolubility, Inertness, and Innocuousness in the Stomach;* and

(**B.**) *Its Ready Resolvability by the Intestinal Fluids*,— dissociating it gradually into its Constituents: CARBOLIC AND SALICYLIC ACIDS,— *when it has passed the Pylorus* and has come into contact with the PANCREATIC FERMENT;—

thus enabling the Physician to institute **A Perfectly Safe Course of Intestinal Disinfection** (*or any other Specific Action* peculiar to either SALICYLIC OR CARBOLIC ACIDS), *without the Patient's incurring any of the Toxic effects* which the Disinfectant Constituents of the Medicament employed would cause *if brought into the Stomach separately.*

—SALOL having been already employed with much success in most various Diseases where some of the immediate or remote *Beneficial effects* of SALICYLIC OR CARBOLIC ACIDS were desired *without their Toxic action*, —CHAVEAU, of the Paris ACADEMY OF SCIENCES, read before that body a paper by W. LOEWENTHAL ([22]), in which the latter described a lengthy and carefully conducted series of Laboratory experiments with KOCH'S **Cholera Bacillus** (the "COMMA BACILLUS"), by which he became satisfied that SALOL, *given internally* in sufficient doses, must prove A POWERFUL SPECIFIC IN ASIATIC CHOLERA!

Dr. LOEWENTHAL'S experiments, as related by himself, showed that this Bacillus, in the Laboratory, develops its *Toxigenic qualities only and always* in Cultures fed on a Nutritive Basis containing PANCREATIC JUICE;—but that, in the presence of **Salol**, *these very Cultures failed, in every instance*, to develop their peculiar VIRUS; because the PANCREATIC FERMENT brought-about, at the same time, *the Resolution of the* SALOL *into its Disinfectant Constituents* [as explained above], which immediately *sterilized* the Bacilli,— that is, deprived them of their Toxigenic power.

Dr. L. argues herefrom, that *an analogous process* of **Bacillus Sterilization** will take place in the *Human Intestinal Canal* whenever "Sufficient Doses" of SALOL are administered to an actual or prospective Cholera patient.

—[Dr. L.'s arguments are, of course, based on the premise that the COMMA BACILLUS is the *cause*—and *not*, as many recent investigators consider it, merely an attendant symptom—of the **Asiatic Cholera.**—E. M.]

——As it is possible that the exhibition of SALOL as a **Cholera Prophylactic or Remedy** would require the employment of much *larger or more frequent doses* than are usually given of it in other ailments,

([22]) *Comptes rendus*, 1888; No. 27, p. 1169–1172.

Dr. LOEWENTHAL'S statement of the *Tests of its* **Innocuousness,** made by him on his own ("very susceptible!") person, is here quoted in his own words:

> "At 10 a. m., *on a empty stomach*, I took 5 grammes [75 grains] of SALOL, and *repeated* the same dose at 7 p. m. the same day. The former dose caused a slight sensation of *Vertigo* after an hour, which *disappeared during breakfast.* The evening dose, *being taken during a meal*, occasioned *no subjective symptoms whatever.* The URINAL DISCHARGES began to come dark *eight hours after the first dose*, and continued so *for forty-eight hours* after the second dose."

——Dr. L. finally proposes, in the absence of more definite guidance by Clinical results, to give SALOL IN CHOLERA as follows: —

> **"As a Prophylactic:**
>
> "2 grammes [30 grains] *during each principal meal*, three times per day.
>
> **"As a Remedy:**
>
> "An INITIAL DOSE of 4 grammes [60 grains] *on the appearance of the first symptoms of* CHOLERA; — AFTER THAT, 1 gramme [15 grains] *each hour.*— (20 grammes [300 grains] of SALOL may be given *daily.*)"

Sodium di-Thio-salicylate *"No. II."*— DI-THIO-SALICYLIC ACID, recently discovered by H. BAUM ([23]), consists of 2 molecules of SALICYLIC ACID connected by a substitutive two-atom molecule of SULPHUR, as in the following formula:

$$\begin{array}{l} S-C_6H_3<\begin{matrix}OH\\COOH\end{matrix} \\ | \\ S-C_6H_3<\begin{matrix}COOH\\OH\end{matrix} \end{array}$$

This acid exists in *several isomeric modifications*, each of which forms its own salts, of course. One of these modifications, distinguished by the discoverer as "**No. II**", gives rise to the above-named SODIUM-SALT, which appears as a greyish-white, very hygroscopic powder, *readily and completely soluble* in Water; and from whose Solutions the DI-THIO-SALICYLIC ACID, upon the addition of other Acids, separates in yellow, viscid drops.

Dr. LINDENBORN, Physician to the MUNICIPAL HOSPITAL at Frankfort-on-the-Main, has conducted a series of *Therapeutic experiments* with

---

([23]) *Berichte der Deutschen Chemischen Gesellschaft*, 1889; No. 5.

Sodium di-Thio-salicylate "*No. II*" ([24]), from which he concludes that *this Salt is preferable to* Sodium Salicylate in **Articular Rheumatism, etc.** This preference appears to be based on its *Smaller Dose*, on its *Prompt and Reliable Action*, and on its *Entire Freedom from Untoward Accessory Effects.* Light cases became freed from Pain, Fever, and Tumescence of the Joints *in two days'* treatment with the new Medicament; and grave ones in six days' *at most.* There was No Specific Effect on the Heart or Principal Vessels, *nor* (especially!) *on the Stomach;* nor any Collapse or Tinnitus.

—The Dose in *light cases* was: 0.2 gramme [3 grains], morning and evening; — in *grave cases:* 0.2 gramme in the morning, and the same, *repeated once, twice, or thrice*, at hourly intervals, in the evening.

— A case of **Gonitis gonorrhoica,** treated *ineffectually* for several weeks with Sodium Salicylate in doses as high as 1–1 $^1/_2$ drams daily, was *wholly cured* in ten days by *three doses per day* of 3 grains each of the di-Thio-salicylate,— one in the morning and two in the evening.

— —The **Antiseptic** powers of the di-Thio-salicylate of Sodium were also found, by Hueppe, to be largely *superior to those of the simple* Salicylate.

Zinc Per-manganate — [*See* "Merck's Index", p. 152.] —**in Urethritis.**— This Salt forms crystalline granules, of a violet-brown color; and — like Potassium Per-manganate — is *very readily soluble* in Water.

Prof. Berkeley Hill ([25]) has used it for several years past in *all forms of* Urethritis,— most frequently, however, in the *Acute form.*— *In nine-tenths* of the 70 cases reported by him as so treated, *the Discharge was greatly reduced*, and in some of them a complete cure was effected; in 4 of the other cases no effect was discernible, and only in 2 the disease grew worse.

One especially remarkable characteristic of the action of this drug, found by Prof. H., was *the Total Absence of any Irritation.*

—It must be remarked, however, that he advises its employment in *quite* Weak Solutions *only*,— say 1 part of the Salt to 4000 of Water.

([24]) *Berliner Klinische Wochenschrift*, 1889; p. 568.

([25]) *The Lancet*, 1889; June 29th.

N. B.—ZINC PER-MANGANATE—*like* the analogous POTASSIUM-salt —*should never be directly compounded with* ALCOHOL, GLYCERIN, SUGAR, DRY or FLUID VEGETABLE EXTRACTS, *or other* easily oxydizable or combustible Organic Substances; as there may be *Danger of Explosion!*

GATHERED FORMULAS.

INDEPENDENT of the TEXT-MATTER.

3 & 4.—**CHRYS-AROBIN** (SO-CALLED "*Chrysophanic Acid*") **in Hemorrhoids.**—[J. M. KOSSOBUDSKI (26).]

The EXTERNAL NODULES having been washed with a *Solution* of 2 % CARBOLIC ACID, or 1 % CREOLIN, in WATER, and then dried with ABSORBENT COTTON,—they are anointed with the following:

—*OINTMENT.*—

CHRYS-AROBIN	0.8 gramme	[12 grains].
Iodoform	0.3 "	[4 1/2 grains].
Extract Belladonna	0.6 "	[9 grains].
Vaselin	25 grammes	[6 1/4 drams].

The INTERNAL KNOTS are treated with the following:

—*SUPPOSITORIES.*—

CHRYS-AROBIN	0.08 gramme	[1 1/4 grain].
Iodoform	0.02 "	[3/10 grain].
Extract Belladonna	0.01 "	[1/6 grain].
Cacao-butter	2 grammes	[30 grains].

If Copious Hemorrhage prevails, TANNIN is added to this compound.

—(The Author of the above Formulæ says:—"Under this treatment, *the most violent pains and hemorrhages vanish* within 3 to 4 days; and *the tumors shrivel away* almost completely within 3 to 4 months.")

5.—**UTERINE HEMOSTATIC.**—[MONTGOMMERY (27).]

—*DRAUGHT.*—

Extract Indian Cannabis	0.5 gramme	[7 1/2 grains].
Extract Ergot	4 grammes	[60 grains].
Fluid Extract Hamamelis, Tincture Canella } *each*	15 cub. cms.	[1/2 fl. oz.].

—*Teaspoonful 3 times per day.*—

(26) *Ruskaia Medizina*, 1889; No. 20.

(27) *Bull. méd. et Lyon. méd.*, 1888; No. 48.

LIBRARY CUES.

No. 1.

Sam'l O. L. POTTER, A. M., M. D., *Professor of the Theory and Practice of Medicine* in the COOPER MEDICAL COLLEGE of San Francisco:—

HANDBOOK OF MATERIA MEDICA, PHARMACY, AND THERAPEUTICS.—832 pages.—Cloth, $3.00.—[P. BLAKISTON, SON & CO., Philadelphia.—1887.]

This book has grown out of a favorably known treatise, by the same Author, on "MATERIA MEDICA, THERAPEUTICS, AND PRESCRIPTION-WRITING", in the "QUIZ-COMPEND" Series of the same publishers (Vol. VI). The older and smaller book was intended especially as a Repertory for Students, preparatory to examination; the present work aspires rather to be a *Practical Guide to the Young Physician.* It seems to be well adapted to the latter end, both in the *selection* of its contents and in their *arrangement*,—which latter point is of importance hardly secondary to the former. Indeed, an uncommon feat of assiduity, judgment, concentration, and methodicity must have been accomplished by the Author, in order to press, into a space comparatively so small, a Compendium so rich in subjects and details, with but few deficiencies and still fewer superfluities; and wherein the reader can with utmost ease lay his hands on everything that is there contained.

The principal bulk of the book is taken-up by the two large *Alphabetical Divisions:*—

"MATERIA MEDICA AND THERAPEUTICS:
Abrus to *Zingiber*.....pages 17 to 398;"
and—"SPECIAL THERAPEUTICS:
Abdominal Plethora to *Yellow Fever*.....pages 515 to 748."

—This leaves still 216 pages occupied by Definitions, Explanations, Classifications, Rules, Hints, Cautions, Memoranda, Tables, and other matter of wide-reaching and diversified nature,—partly *Didactic* and partly *Statistic* (a very exhaustive ALPHABETIC REGISTER, of all the subjects treated, being among the most useful contributions of the latter class).

The first ALPHABETICAL DIVISION above referred-to ("*Abrus* to *Zingiber*") combines the discussion of the Materia Medica with Therapeutics, after the manner usual in "Dispensatories",—yet with certain original and happy peculiarities of arrangement. It places the principal Drugs under their Officinal names, followed by their English translations and synonyms; then states their botanical or physical description and their chemical nature or constituents (*with Formules*). Thereafter their Derivatives, Preparations, *and Analogues* are described separately, in a distinctive, smaller style of print. Then follows the characterization of the Principal Article and of its Appendices as to Physiologic action and Therapeutic use, *Dosage*, Form of Administration, etc.; distinction being made, where needed, as to the effects of Ordinary Doses, Repeated Small Doses, and Toxic Doses. ("Antagonists", "Antidotes", and "Incompatibles" follow.)

The other ALPHABETICAL DIVISION ("*Abdominal Plethora* to *Yellow Fever*") pursues a plan just the reverse of the above,—giving the name of each particular Disease (*without any symptomatic description*, or diagnostic guide, however!) at the head of each article,—following it by a rather comprehensive, but very concise, list of the *Treatments* suggested therefor by recent authorities, whose names are stated in each case.—Brief hints as to the *Indications* to be considered, the manner of Exhibition to be employed, and the form and degree of Action to be expected, are liberally inserted. *Special Dosages* are often noted. Approved *Prescription Formulæ* are given for the more frequent Diseases.

The 216 pages—as above stated—which are *not* taken-up by the Two Alphabetical Divisions here discussed, contain succinct statements of LEADING PRINCIPLES that will *help the understanding* of those who have read little, or who have read too much and grasped too little; and PRACTICAL DIRECTIONS that will assist those who have sufficient learning but insufficient experience,—in guarding against errors of judgment, slips of memory, and hasty mistakes *in Diagnosing, in Prescribing, or in Dispensing.*—Added to these are divers MEMORANDA on SPECIAL SUBJECTS,—such as: Thermometry, Hypodermics, Obstetrics, Urine, Patent Medicines, Poisoning, Asphyxia, etc.—The Chapters on "CLASSIFICATION OF MEDICINES" (according to the *Organs* they affect principally), on the various departments of PRACTICAL PHARMACY, on PRESCRIPTION-WRITING, and on LATIN ETYMOLOGY, will be especially useful to beginners who "have crammed more than they could digest",—*and* probably to some others.—The Tables on "DIFFERENTIAL DIAGNOSIS" (distinguishing among *Forms of Disease* liable to be confounded) *might have been extended beyond their present limits with great benefit* to those whose training has been scanty of Clinical Demonstration.

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URETHRAL INJECTION *in Blennorrhagia.*

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The *Permanent Preservation of* MERCK'S BULLETIN *by Binding* is advisable from the circumstance that the calls for **"Back Numbers"** are constantly multiplying, while only a limited supply remains for satisfying such calls; and when that supply is exhausted, *the Single Numbers will be unobtainable.*

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Borates of Alkaloids,— especially for Collyria.— PETIT and GALEZOWSKY ([28]) recommend the use of ALKALOID BORATES *especially for* EYE-WATERS, for the reason that the BORIC ACID, even if present in excess, *will exert no deleterious action* in this application (while *other Acids*, with which Alkaloids are usually combined, are liable to *produce irritant effects*).

The following **Borates of Mydriatic and Myotic Alkaloids** have so far been placed in the market by E. MERCK:

Atropine Borate,
Cocaine Borate,
Physostigmine (**Eserine**) Borate,
Pilocarpine Borate,

— also:

Morphine Borate,— *and others.*

Cetraric Acid, (Cetrarin — [*See* "MERCK'S INDEX", p. 35.]),— $C_{18}H_{16}O_8$,— the Bitter principle (*Amarulent*) contained in *Cetraria islandica*, (Iceland Moss),— forms white needles, of bitter taste, and is readily soluble in *boiling* Alcohol.

The *older* Physiological and Therapeutical researches on CETRARIC ACID, made by KÖHLER and MÜLLER ([29]), were supplemented by a more recent work of A. FORTUNATOW'S ([30]), which gave some new and interesting points on this Medicament.—FORTUNATOW showed that **Intravenous Injections** of CETRARIC ACID *Augment the Secretions of the* PANCREAS; and *still more so* those of the SALIVARY GLANDS. Furthermore, that Doses of 2–4 centigrammes *per kilogramme* of the animal's weight [2–4 parts per 100,000], injected into the Blood, *increase* the BILIARY SECRETION by 2–4-fold its usual quantity.

CETRARIC ACID, *Intravenously injected, has No effect on Gastric Digestion;* while, given *by Mouth*, it exerts a *Disturbing influence* thereon.

—*At the present time*, the PHARMACOLOGICAL INSTITUTE OF DORPAT UNIVERSITY, conducted by Prof. KOBERT, has a series of researches on

---

([28]) *Les Nouveaux Remèdes*, 1889; p. 143.

([29]) "Pflanzenstoffe", HUSEMANN and HILGERS; p. 318.

([30]) "Zur Frage über die Wirkung der Bittermittel",— Inaugural Dissertation; St. Petersburg, 1884.

CETRARIC ACID in hand, whose approaching completion will give new light on this interesting Amarulent.—*So much has transpired* in regard to the results even now, that **Therapeutic employment** of CETRARIC ACID appears quite rational.

Codeine, ALKALOID,— [*See* "MERCK'S INDEX", p. 38.],— as an **Anodyne in Ovarian Troubles.**—A. W. FREUND ([31]) has recently developed the interesting fact that CODEINE will exert a strong, unmistakable, and mostly *very prompt Abating Influence* on **Pains proceeding from the Ovaries**; as, for instance, in SHIFTING or PROLAPSE of the Ovaries, in Acute or Chronic PERI-OÖPHORITIS, OÖPHORITIS, and in SIMPLE OVARIAN NEURALGY.

In most cases of this nature, DOSES of 3.3 centigrammes [$^1/_2$ grain] of CODEINE ALKALOID, *in Pill-form* (with EXTRACT GENTIAN and POWDERED GLYCYRRHIZA), *three times per day*, will suffice; only in rare instances will an Increase of Dose be required.

Codeine Phosphate — [*See* "MERCK'S INDEX", p. 38.] — **in Morphine-habit**; — and, as a **Sedative and Hypnotic in Insanity, Insomnia, etc.**

CODEINE PHOSPHATE was first prepared for the Drug-trade on a large scale by E. MERCK, in 1882, at the suggestion of Prof. HEGAR, of Freiburg,—with a view to obtain a compound suitable for **Hypodermic use**; *all the previously* obtainable CODEINE-SALTS, as well as the ALKALOID itself, having proved *too sparingly soluble*, and partly too irritating, to serve that purpose well. CODEINE PHOSPHATE *answers the Hypodermic requirements excellently;* being SOLUBLE IN 4 PARTS WATER, and *leaving the Puncture comparatively free from Irritation.*— (It is advisable to prepare the HYPODERMIC SOLUTIONS *fresh for use each time*, as they tend to generate FUNGI.—An addition of BITTER-ALMOND WATER, however, is conducive towards their preservation.)

— CODEINE and its SALTS have received much attention from Medical men recently. Thus, DORNBLÜTH ([32]) reports a series of *very suc-*

([31]) *Therapeutische Monatshefte*, 1889; September.

([32]) *Therapeutische Monatshefte*, 1889; August.

cessful applications of CODEINE-PHOSPHATE INJECTIONS for the **Sedation of Insane Excitations.**

Dr. DORNBLÜTH admits that CODEINE (PHOSPHATE) acts *less energetically than* a HYOSCINE-preparation; he insists, however, at the same time, that it is *quite well available whenever a Change of Hypnotics appears desirable*, and that it is, moreover, indicated in those cases *where* HYOSCINE-*applications are productive of Hallucinations.*

CODEINE PHOSPHATE is also *indicated prominently* for the **Suppression or Palliation of Apprehensive Restlessness, Precordial Sensations, and Insomnia.**

—According to extensive observations by FISCHER (33), TOLERANCE and HABITUATION, analogous to "MORPHINISM", *are Not caused by* CODEINE.

FISCHER recommends the following Formula for:

Codeine Hypodermics.

CODEINE PHOSPHATE 1 gramme [15 grains]; Distilled Water 20 grammes [5 1/4 fl. dr.]; Carbolic Acid 0.02 gramme [1/3 minim].—*Inject 1–2 Syringefuls.*

—SCHMIDT, of Wiesbaden (34), was the first to recommend the **Internal use** of CODEINE PHOSPHATE for the **Treatment of Morphinism.** If the CODEINE-treatment be begun *at an early stage*, the Symptoms induced by the MORPHINE-*abstinence* will gradually disappear; so that the CODEINE-doses may be, in their turn, *successively reduced.*

A TEN-PER-CENT SOLUTION was found the most eligible form for INTERNAL EXHIBITION.—The *Largest Daily Dose* hereof employed by SCHMIDT contained 3 grammes [46 grains] of CODEINE PHOSPHATE.

Di-Iodo-Salicylic Acid (*Di-Iod-Salicylic Acid*—[*See* "MERCK'S INDEX", p. 4.]) —$OH.C_6H_2I_2.CO_2H$—is a white powder, consisting of micro-crystalline needles, very little soluble in cold Water; a little more so in hot Water; *quite readily soluble in Alcohol* and in Ether.

Therapeutic effects of this new Medicament were reported, at the INTERNATIONAL THERAPEUTICAL CONGRESS in Paris, by V. CALALB, of

(33) *Correspondenzblatt für Schweizerische Aerzte*, 1888; No. 19.

(34) Report of the SIXTY-SECOND CONGRESS OF NATURALISTS, at Heidelberg,—*Wiener Medizinische Presse*, 1889; No. 43.

Bucharest (35).— Given *Internally* in Doses of $1\,^1/_2$–4 grammes [23–60 grains] *Daily*, it acted as an **Analgetic** and **Antithermic**,—at the same time exercising a *Retarding effect on the Heart-movement.*—Also, as an **Antiseptic**, its services were found excellent.

Di-Iodo-Salicylic Acid was shown to be *of especial value* in cases of **Arthritis blennorrhagica** where Salicylic Acid and Salicylates had remained void of effect.

Hydrastinine (*not:* **"Hydrastine"!**),—and: **Hydrastinine Hydrochlorate.**

Hydrastinine is a so-called "*Artificial Alkaloid*", obtained as a *Fractional Derivative*, by Oxydation and Hydration, *out of the Natural Alkaloid* Hydrastine (from *Hydrastis canadensis*) [36].—Their formules are:

"Artificial" Alkaloid **Hydrastinine**: $C_{11}\,H_{11}\,N\,O_2 + H_2\,O$;
Natural Alkaloid **Hydrastine**: $C_{21}\,H_{21}\,N\,O_6$.

Hydrastinine Alkaloid crystallizes from "Petroleum-ether" (*Benzinum, U. S. Ph.*) in needles melting at 116–117° C [241–242 F], and readily soluble in Alcohol, in Ether, and in Chloroform,—poorly so in Water (*hot!*). The Aqueous Solution gives a strong Alkaline reaction. **Its Salts** are mostly *soluble in Water.* Of them, the **Hydrochlorate** *is best adapted for* Medical uses.

—Hydrastinine Hydrochlorate has been employed to very good effect in **Uterine Hemorrhages** consequent upon *Endometritis* or *Myoma*, by E. Falk (37).

Especially favorable results were also obtained with this salt in **Congestive Dysmenorrhea**, as well as in **Hypermenorrhea** caused by *Textural Modifications of the Uterus.*

In these Menstrual cases (of both kinds), *it is best to commence Treatment about 6–8 days before the expected Period*,—Injecting Subcutaneously a Daily Dose of Half a Syringeful of a Ten-per-cent Solution: being = 0.05 gramme [$^3/_4$ grain] of Hydrastinine Hydro-

---

(35) *Les Nouveaux Remèdes*, 1889; p. 595.

(36) Freund and Will; in *Berichte der Deutschen Chemischen Gesellschaft*, 1886; p. 2797;—and 1887; p. 89.

(37) *Therapeutische Monatshefte*, 1890; p. 19.

CHLORATE.— *As soon as the Menstrual Discharge has begun*, and during its entire continuance, the *Dose is raised* to a Whole Syringeful.

In **Irregular Menstrual Flow,** FALK uses Half a Syringeful of the same Solution *regularly* 2–3 times *each week.*

Falk's Formula:

HYDRASTININE HYDROCHLORATE 1 gramme [15 grains]; Distilled Water 10 grammes [2 5/8 fld. drams].— *Inject Subcutaneously: Half to Whole Syringeful*, [8 to 16 minims].

Lobeline, Alkaloid; *and* Sulphates,— [*See* "MERCK'S INDEX", p. 84.],— **from the Leaf or from the Seed.**

The SIMPLE ALKALOID LOBELINE — *whether prepared from the* LEAVES *or from the* SEEDS of **Lobelia inflata** — forms a yellow, *Syrupy Liquid*, which *darkens* in keeping.— For Medicinal use, the **Sulphate** of this Alkaloid appears to be best adapted. *Of this, there are two kinds* obtainable, as follows:

Lobeline Sulphate from Lobelia *Seeds,*— yellowish, crumb-like, little lumps; EXTREMELY *hygroscopic*, and hence *difficult of Exhibition in* POWDER-FORM; — and:

Lobeline Sulphate from Lobelia *Leaves,*— yellowish-white POWDER; LESS *hygroscopic* than the SULPHATE FROM SEEDS.

The Physiologic actions of both these Sulphates *are not known* — as far as evident from quoted reports — *to differ from each other.*

—According to recent researches by DRESER ([38]), LOBELINE is *The Only Medicinally Active Principle peculiar to* the LEAVES and SEEDS of *Lobelia inflata.* It kills warm-blooded animals by *Paralyzing the Respiration*,— being, thus, a **Respiratory Poison.**

— Quite recently, SILVA NUNEZ ([39]) has most warmly recommended the use of LOBELINE in the treatment of **Bronchitical Dyspnea** and of **Spasmodic Asthma.** This Alkaloid (including its Salts) *is vastly preferable to the old, Galenic Preparations of* LOBELIA; as it does not share their Untoward Effects (VOMITURITION and DIARRHEA).

([38]) *Archiv für Experimentelle Pathologie und Pharmakologie*, 1889; p. 237.

([39]) *The British Medical Journal*, 1889; p. 1051.

Lobeline, or its Salts, may be exhibited **Subcutaneously**;—as well as **Internally** (in Pill-mass or in Fruit-juices).

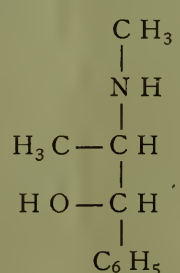
Nunez's *Doses by Mouth* cover the wide range from 5 to 40 centigrammes [$^3/_4$–6 grains] *per Day*. The usual Rule of Dosage with this Medicament is, to *begin low*, and *gradually rise* up to a Daily of 20–30 centigrammes [3–4 $^1/_2$ grains].

Also with **Children**, Doses of 1–5 centigrammes [$^1/_6$–$^3/_4$ grain] *afford notable relief* in Asthmatic Dyspnea.

Pseudo-Ephedrine — [$C_{10}H_{15}ON$] — Pure Alkaloid,— as a **Mydriatic.**—*This Alkaloid*, from certain species of *Ephedra*, was first noticed, and its Hydrochlorate described, in the last of a series of notes on Ephedrine Hydrochlorate (a Mydriatic Alkaloid-salt derived from *Ephedra vulgaris*, *var. helvetica*) in Volume I of this journal ([40]).

Pseudo-Ephedrine was first prepared by E. Merck. Its chemical character has been closely investigated, within a twelvemonth past, by Ladenburg and Oelschlägel ([41]).

The Pure Alkaloid Pseudo-Ephedrine is of crystalline form, and possesses a weak, agreeable odor. It is easily soluble in Alcohol; difficultly so in cold Water; somewhat more readily in hot Water. Its melting-point is (uncorrected) about 114–115° C [averaging about 238 F]. Elementary analysis gave it the formula above stated. An investigation of its Fractional Derivatives makes the following probable as representing its constitution:



The **Physiologic action** of Pseudo-Ephedrine **on the Eye** (by Instillation) has been made the subject of elaborate investigation by A. de Vriese ([42]). The leading points obtained by him are as follows (in the investigator's own words):

([40]) Merck's Bulletin, 1888; April, June, December.

([41]) *Berichte der Deutschen Chemischen Gesellschaft*, 1889; p. 1823.

([42]) *Annales Oculistiques du Dr.* Warlomont, 1889; Nos. III and IV, p. 183.

"1.—PSEUDO-EPHEDRINE acts on the *Pupil*,— powerfully *enlarging* it.

"2.—*One-per-cent* Solutions act but slowly. *Strong* Solutions (10–12 %) achieve the effect inside of 30–35 minutes, in the *Human* eye.

"3.—The Instillations have to be repeated once or twice, at *short* intervals,— applying *several* drops each time.

"4.—The Efficacy *varies slightly in different individuals.* The 10-% Solution required one hour to produce powerful Mydriasis in a large Dog; while, in *my own* Eye, it was accomplished in 35 minutes.

"5.—The Luminar and Accommodation *Reflexes remain entirely intact.*

"6.—As demonstrated by experiments on my own and others' persons, *neither the Accommodation nor the Refraction are modified.*

"7.—The *Sensibility is not affected*, *nor is Inflammation provoked*, even after many Instillations, continued for several successive days. I have tested this also on my own person.

"8.—The *Intra-ocular Pressure is not altered.*

"9.—The Enlargement of the Pupil *takes place gradually*, —not by instalments. *It does not attain the possible Maximum*, as it does with ATROPINE; but it is *more than sufficient* for **Ophthalmoscopical Investigations.**

"10.—According to the different natures of individuals, the *Pupil returns to its Normal Size in 6 to 9 hours.* This return is *also effected gradually*,— not by breaks."

From further experiments, made by DE VRIESE partly on *himself* and partly on Dogs, it appears that "PSEUDO-EPHEDRINE *acts simultaneously on the Terminal fibers of the* OCULO-MOTORIUS *and on the Muscular fibers of the* SPHINCTER PUPILLÆ. The Paralyzation of the *Nerve*-fibers is *but slight;* while that of the *Muscle*-fibers is, one might say, *complete.*"

The "**Practical Advantages** *possessed by* PSEUDO-EPHEDRINE *over other Mydriatics*" are summed-up by the Doctor as follows:

"*It occasions neither Inflammation, nor Disturbances of Refraction or of Accommodation; it does not modify the Intra-ocular Pressure; and it can be employed for a long time without causing any harm.*"

Theobromine and Soda, Salicylate,— (*so-called* "Diuretin").—White crystalline powder, but *slightly* soluble in cold Water; *soluble in hot Water* and in *warm diluted Alcohol;* insoluble in Ether and in Chloroform.

This Salt has been *Clinically* investigated by Ch. GRAM (43), who says that it is *much more easily resorbable than the Simple* THEOBROMINE.

Its Action is reported to be **Strongly Diuretic**; while *devoid of any Toxic properties;* and *free from the peculiar Excitant Influence* on the Central Nervous System, possessed by CAFFEINE.

Eligible FORM of Exhibition: — *Powder.*

DOSE: —*Single* 1 gramme [15 grains]; *Daily* 6 grammes [1 1/2 drams].

The SALICYLATE OF THEOBROMINE AND SODA was first manufactured by E. MERCK, some time ago, at the instance of Prof. Dr. RIEGEL, of GIESSEN UNIVERSITY.— Quite recently, however, *this same compound* has been found in the markets *as a so-called Therapeutic Novelty*, under the name of "DIURETIN".

GATHERED FORMULAS.

INDEPENDENT of the TEXT-MATTER.

6, 7, & 8.— For Treatment by MERCURIC BENZOATE (*Mercury Per-oxide Benzoate*).— [STUKOWENKOFF, in *Wiener Medizinische Wochenschrift.*]

—SUBCUTANEOUS INJECTION.—

In Syphilis.

MERCURIC BENZOATE	0.3 gramme	[4 1/2 grains].
Sodium Chloride	0.1 "	[1 1/2 grain].
Cocaine Hydrochlorate	0.15 "	[2 1/4 grains].
Distilled Water	40 grammes	[1 1/4 fl. oz.].

The above is for Injection in the Lumbal or Gluteal region.

—TOPICAL INJECTION.—

In Syphilitic Ulcerations.

MERCURIC BENZOATE	0.1–0.3 gramme	[1 1/2–4 1/2 grains].
Sodium Chloride	0.1 "	[1 1/2 grain].
Distilled Water	40 grammes	[1 1/4 fl. oz.].

—URETHRAL INJECTION.—

In Blennorrhagia.

MERCURIC BENZOATE	0.3 gramme	[4 1/2 grains].
Sodium Chloride	0.2 "	[3 grains].
Distilled Water	100 grammes	[3 1/4 fl. oz.].

(43) *Therapeutische Monatshefte*, 1890; p. 10.

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No. 2.

OOD, M. D., *Professor of Materia Medica and Therapeutics* in the UNI-
RSITY OF PENNSYLVANIA,—
and :
IRE, M. D., *Demonstrator of Therapeutics :—*

CAUSE OF DEATH FROM CHLOROFORM.—(*Reprint Pamphlet.*)—
[LEA BROTHERS & Co., Philadelphia.—1890.]

stion here at issue was raised—although not originally, but with renewed force and increased
rity—by a Medical Commission at Hyderabad, in the East Indies, whose report was confirmed
Commissioner sent from London to investigate it.—The conjoint purport was that experiments on
gs had established Chloroform as a PRIMARY RESPIRATORY POISON—(*not a Heart-poison prima-*
e effect was repeatedly shown to be neutralizable by Artificial Respiration promptly applied.
s, *The Lancet* (London) drew the further conclusion that HUMAN "DEATHS from Chloroform . . .
. *may be with certainty avoided.*"—[A timely application of Artificial Respiration, if needed,
hat is meant by the "due care".]

the fundamental hypothesis set-up in the Hyderabad report, as above stated, as well as against
ference from it, the Authors of the submitted treatise bring forward arguments which represent
be BOTH *a Respiratory and a Cardiac "depressant poison"*. They show that Heart-arrest
nplished by this poison, *precedent to, and independent of*, Respiratory paralyzation; and that,
mount of Artificial Respiration, however promptly applied, is likely to revive *such* cases.

gh this little Monograph is of strictly *polemical* character, it must justly be ranged out from
rgely ephemeric publications of this class, and in with the heavier volumes destined for perma-
tion,—until the question mooted in it shall have been decided beyond peradventure, and the
own as a settled theorem in the text-books. To such future decision, the Authors have contrib-
points. Their arguments move on very exact and perspicuous lines of demonstration. One of
such as can admit of no controversy on the matter of fact. It rests on phototypic reproductions
y characteristic tracings of the *simultaneous indications* given by the Kymographion and the
'ambour. These instruments record, in graphical form, the variations occurring at each instant
eriment in relation to the *Blood-pressure* and the *Breathing* of the subject. The record is pro-
direct automatic action of the instrument, and hence is unquestionable.

oncile the disaccord between facts thus apparently established in India and others established in
Authors have not shirked touching the delicate questions as to whether demonstrations on
necessarily apply in equal direction and force to American dogs, or at all to Human patients
They also point forcibly to the axiom that conclusions from *negative* experiences can not very
late existing opposite conclusions that are established on the basis of *positive* evidence.

urse of the discussion of their express topic as stated, several intimately accessory details, offer-
ntific and practical interest, are cursorily noticed by the Authors, as being involved in the state-
criticized report. Thus, the Pamphlet also throws *some very suggestive side-lights* on the total
much-vexed "Chloroform Question".

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Abrin — obtained from the SEEDS of *Abrus precatorius*, (Indian Liquorice); ["JEQUIRITY"]; — is a brownish-yellow Powder, *soluble in Water*. It is an *exceedingly poisonous* ALBUMINOID or PROTEID SUBSTANCE, belonging to the class of UNORGANIZED FERMENTS; and in these respects it much resembles "RICIN" (described in *this Number*, page 31).

E. MERCK prepared ABRIN at the request of Prof. KOBERT, of DORPAT UNIVERSITY, who is now subjecting it to a thorough pharmacological investigation. According to *preliminary communications* from the Investigator (44), the LETHAL DOSE, INTRAVENOUSLY, is only 0.00001 gramme per kilogramme [1 to 100,000,000] of the animal's weight. The enormous Toxicity of this substance therefore calls for *extreme caution* in its Keeping, Handling, and Exhibition.

— Of high **Therapeutical interest** is the fact that Prof. KOBERT succeeded in inducing the well-known "**Jequirity Ophthalmia**" *both by* ABRIN and by the substance above referred-to as "RICIN".

> [This appears to disprove the older, *Bacillary* or *Bacterial*, theories of "JEQUIRITY"-poisoning, set forth by CARNIL and BERLIOZ, and by SATTLER, as quoted in the "National Dispensatory"; IVth Ed., p. 1–2.]

— (*See*, furthermore, the treatise on "The Active Principles of the Seeds of Abrus precatorius", by SIDNEY MARTIN and WOLFENDEN [45].)

Ethyl Bromide, (MONO-BROM-ETHANE; *Hydrobromic Ether* — [*See* "MERCK'S INDEX", p. 47.]) — $C H_3 . C H_2 Br$, — has been described before in these pages (46); while the **Physiologic contrast** between the *Impure and Toxic article* mostly obtained by the old PHOSPHORUS-ALCOHOL-BROMINE PROCESS, and the *Pure and Innocuous article* obtainable by the MODERN PROCESS, was pointed out at the same time. The **Harmlessness and Eligibility** of PURE ETHYL BROMIDE in Small Operations, *as compared with* CHLOROFORM, was likewise shown; and the *Toxic effects* ascribed to it in some older reports were justly referred to the *Impure* preparation there denounced.

---

(44) [By Letter to E. MERCK.]

(45) *The British Medical Journal*, 1889; p. 1053.

(46) MERCK'S BULLETIN, 1888; p. 15–16.

[*In this connection* (as to CHLOROFORM), a recent treatise on "The Cause of Death by Chloroform," by Prof. WOOD and Dr. HARE (47), is of interest,—as showing conclusively, by a series of specially conducted Animal experiments, that **Chloroform** is *often quite uncontrollable;* and that it must therefore be *always considered insidiously dangerous*, in its quality of a **Heart-paralyzant.**]

Later-on (48), a warning *against confounding* ETHYL BROMIDE with the similarly-named, but quite differently-composed (and *Non-Anesthetic but Toxic*) ETHYLENE BROMIDE — $C H_2 Br . C H_2 Br$ — was published.

— A number of *still more recent reports*, confirming the **Eminent Preferability of Ethyl Bromide before other Anesthetics for Operations of Brief Duration,** justify the publication, in this connection, of the following abstracts:

LEO SZUMANN, of Thorn (49), as formerly noticed, confirmed the favorable experiences had by ASCH and PAUSCHINGER with this Anesthetic in *Small Operations* of but a few minutes' duration, and in *Obstetric Practice* during the Expellant Labors.—He recommends laying the MASK *closely* over the Nose and Mouth, and *copiously saturating* it one to three times with ETHYL BROMIDE,—so as to consume, on an average, about 20–30 grammes [= barely $^1/_2$–$^3/_4$ fl. oz.,—*at 1.40 spec. grav.!*] of the Anesthetic. Hereby, the *Sensibility to Pain is almost wholly suspended*, while the *Tactile sense and Consciousness are generally maintained.* (An exception takes place with *Alcoholists*, who usually are *not* susceptible to Narcotization by either small or large doses of ETHYL BROMIDE.)

SZUMANN **counter-advises,** however, the use of ETHYL BROMIDE in *Larger Operations*, such as Extirpations of Goiter, Ovariotomies, etc.; *because*, after Inhalations of *Large Doses* of ETHYL BROMIDE, (such as might be necessary herefor,—say: 100 grammes, or $2\,^3/_8$ fluidounces), he saw *Acute Bronchitis* survene.—Furthermore, he does *not* hold Narcotization by ETHYL BROMIDE to be indicated in *Repositions of Luxations*, and the like; because it does not do away with the *Muscular rigidity*, and, in continued Narcosis, a Cataleptic condition of the Muscles is quite apt to arise.

---

(47) *The Medical News*, 1890; Feb. 22.

(48) MERCK'S BULLETIN, 1889; p. 23.

(49) *Therapeutische Monatshefte*, 1888; p. 155 & 226.

— GILLES, of Cologne ([50]), after employing ETHYL BROMIDE (exclusively of E. MERCK's make !) in more than 450 *Painful Dental Operations*, summarizes his finding thus :

> "ETHYL BROMIDE, *when Chemically Pure*, is **A Most Excellent General Anesthetic,** because it acts *promptly* and *certainly*, and, when employed with due care, *non-dangerously*. It can hardly receive sufficient commendation for DENTISTS' UNIVERSAL USE. Its *advantages over* Chloroform, Nitrous Oxide, Cocaine, and whatever *other Anesthetics* we have been using, *are so vast* that, with the exception of some very rare and complicated cases, it must soon come to be recognized as **The Sole Standard Anesthetic for Dental Surgery.**"

GILLES, like SZUMANN, emphasizes the rule that, *to produce a good Narcose*, the ETHYL BROMIDE *must not be doled out by drops*, as CHLOROFORM would be, but must *drench* the Mask *thoroughly* from the start ; and that the Mask must be *applied closely and firmly to the Facial surface*, and so as to *cover the Nose and Mouth entirely ;* because the simultaneous INHALATION OF AIR in quantities, *with* this Anesthetic, *impairs* its Narcotic action.

The Doses of ETHYL BROMIDE necessary for *complete Narcotization*, in GILLES's practice, rarely exceeded 10–15 grammes [2–3 fl. dr.]. The Narcose was usually secured *in one-half minute* after application ; WITH CHILDREN, quite frequently in a little over *one-quarter minute* (at most 8 grammes [about 1 1/2 fl. dr.] being used in these cases).

Dangerous Accessories — especially, a LOWERING OF THE PULSE; or, INTERRUPTION OF RESPIRATION — *were never noticed.*

According to GILLES, the use of ETHYL BROMIDE is indicated *not only in* EXTRACTIONS OF TEETH, but likewise in the MECHANICAL DESTRUCTION OF INFLAMED PULP, and in the EXCAVATION OF VERY SENSITIVE DENTIN.

—*Equally favorable verdicts* to SZUMANN'S and GILLES'S have been pronounced on ETHYL BROMIDE by C. E. DIEHL ([51]), and by C. ESCHRICHT ([52]).

——*Vivid interest* attaches to the experiments with ETHYL BROMIDE instituted on the occasion of the SIXTY-SECOND ANNUAL MEETING OF

(50) *Deutsche Monatsschrift für Zahnheilkunde*, 1889; Vol. VII, No. 7.

(51) *Les Nouveaux Remèdes*, 1889; p. 361.

(52) *Deutsche Medizinische Wochenschrift*, 1889; XV, p. 31.

German Naturalists and Physicians at Heidelberg, by H. Hamecker, of Cottbus. A *Private communication* by this gentleman (53) states the following:

> "Experiments on Animal and Human subjects, made by me *with your* [Merck's] *Preparation*, have induced the Meeting *to declare unanimously*, by Individual Vote on Roll-call, that **Ethyl Bromide is not a Heart-poison.** In the Animals experimented-on, *after Respiration had ceased* and the Thorax had been opened, the Contractions of the Heart *remained uninterruptedly powerful and regular* for 15 to 19 minutes more.
>
> "The Human experiments showed that Ethyl Bromide *is excellently adapted* for the Minor Surgical Operations. They showed, however, in addition, that *a properly conducted, plentiful, and sudden administration* of Ethyl Bromide is capable also of securing, *easily and promptly*, **Narcoses of greater Duration and considerable Intensity.**"

—In the above-mentioned report by Szumann, the fact is recognized that, *notwithstanding* proper Indications and correct Administration, the desired effect has sometimes been partly or wholly missed. Such cases appear to be due either to Idiosyncrasy of the patient, or to Adulteration of the medicament.

> The **Pure Ethyl Bromide** is a colorless, limpid, very mobile, not readily inflammable liquid, *hardly soluble in Water;* miscible in all proportions, however, with Alcohol, Ether, Chloroform, or Fatty or Ethereal Oils.—*Specific gravity* at 15° C [59 F]: 1.45 (against 2.18 for the *Toxic* Ethylene Bromide [*Di-Brom-Ethane*], which has sometimes been confounded with it). The *former* remains unchanged at 0° C [32 F]; while the *latter* freezes. (The difference in their *boiling-points:* 38–39° C [101 F] against 131.6° C [268.9 F]—has been stated before.)
>
> According to Bernhard Fischer (54), Ethyl Bromide, shaken with an equal volume of Distilled Water, must not impart any *Acid* reaction to the latter. (*Absence of Hydrobromic Acid.*)—Mixed with an equal volume of Pure Concentrated Sulphuric Acid, no *Coloration* must arise within 24 hours. (*Absence of Ethylene-, Amyl-, or Sulphur-compounds.*)—A few drops of Ethyl Bromide, thrown into a stratum of Potassium-Iodide Solution about 3 centimetres [somewhat over an inch] deep, must not, in settling, exhibit any *Violet color.* (*Absence of Free Bromine.*)

The *agreeable, sweetish, Chloroform-like Odor* of Ethyl Bromide is one of the readily recognizable physical characteristics of the **Properly-**

(53) [By Letter to E. Merck.]

(54) "Die Neueren Arzneimittel", 1888; p. 54.

made Preparation.— So are also its *Colorlessness* and *Ready Volatility*. (A yellowish or brownish, or pungent-smelling, or poorly volatile article must therefore be rejected.) — Ethyl Bromide *evaporates so rapidly* from the Inhalation-mask, that the cold thereby created is liable to cause the formation of minute ice-crystals on the surface of the Mask.

— —Ethyl Bromide has sometimes been reproached with inducing **Vomition.** It must be remarked that Individual Tolerances *differ largely* in regard to this, as to other Anesthetics. Persons affected with an *Idiosyncrasy* against this particular substance, and *Neurasthenic* sufferers, may easily be seized with a Vomituritive Tendency *after the expiration of the Narcose;* but *only quite rarely* will an actual Vomition take place.—A Physician who has observed Hundreds of Ethyl-Bromide Narcoses states to us that only in *one per cent* of all these cases did Vomition set-in; and in *one more per cent* only was there any, though ineffectual, Retching induced.

— —*Attention* should be paid to **Keeping** the Ethyl Bromide, not only in a *cool, dark place* (preferably in a Refrigerator in summer), but also in Small, Dark-colored, Completely-filled, and Tightly-stoppered Bottles; as it is very *prone to decompose* under the conjoint action of Air and Light. The contents of a bottle once opened should be *used immediately*, and any portion thereof not so used should *never be stored away again* for future service, but rejected. If thus treated, the Medicament will keep quite well for a long time.

Iron Succinate — [*See* "Merck's Index", p. 75.] — is an *amorphous*, red-brown powder; *insoluble* in Water and in Alcohol.

— According to Buckler (55), Succinate of Iron, *in conjunction with* Chloroform, is very efficacious in **Biliary Calculi.** The Chloroform is given in *Doses* of 10 drops each, four to six times per day; and the Iron Succinate, a *Teaspoonful* after each meal.—This treatment is to be continued for several months, *until the* Gall-stones *are completely dissolved and the* Diathesis *is abolished.*

---

(55) Therapeutic Notes of *Deutsche Medizinische Zeitung*, 1889; p. 79.

Lanolin, anhydrous,— [*See* "MERCK'S INDEX", p. 81.],— (*Lanolinum sine aqua*).—The PURIFIED WOOL-FAT, usually called "LANOLIN", consists essentially of the ESTERS of various FAT-ACIDS with CHOLESTERIN (Chole-stearin).

LANOLIN is wholly indifferent to SOLUTIONS OF SALTS, of which it is capable of absorbing and retaining almost *double its own weight.* At ordinary temperatures, LANOLIN is not attacked either by Acids or Aqueous Alkaline Solutions; it is, moreover, *absorbed by the Skin much more quickly and more completely* than any other Fatty substance known. To these qualities, LANOLIN owes its extensive use in Medicine as an **Ointment-base.**

—*Hitherto*, LANOLIN *was brought to market*, **mixed with 25 per cent of Water.** *This admixture has the sole purpose of giving the* LANOLIN *a lighter color.*

The **Anhydrous Lanolin** possesses the same desirable qualities as the HYDRATED LANOLIN. It is of a light-brown color, of unguentous consistency, and of *absolutely neutral reaction.* Its melting-point is about 45° C [113 F]; it is clearly soluble in Ether; and it yields **Homogeneous Mixtures** with AQUEOUS and with ALCOHOLIC LIQUIDS, and with Fatty and Ethereal Oils.

Anhydrous Lanolin *does not become rancid*, and will therefore *keep for an unlimited time.* Hence, it is *the only really eligible* **Ointment-base for Hot Climates.**

ANHYDROUS LANOLIN gives the reaction, peculiar to LANOLIN, which is known as LIEBERMANN'S Cholestol reaction; and also that known as SALKOWSKY and VULPIUS'S Chloroform-and-Sulphuric-acid reaction. It satisfies, moreover, all those requirements which, according to BERNHARD FISCHER ([56]), are to be made for Pure LANOLIN.

—ANHYDROUS LANOLIN is applied to the same uses in **Pharmaceutic practice**, as the *Hydrated* article is. *In many instances, however, only the Anhydrous article can be used to advantage.* Such are: the preparation of PLASTERS (which are now largely made with LANOLIN); or of MERCURIAL LANOLIN OINTMENT (*Lanolinum Hydrargyri*), etc.,—inasmuch as, for using HYDRATED LANOLIN in such cases, the Water contained therein would first have to be removed by Heat. *Especially, however, is*

([56]) "Die Neueren Arzneimittel", 1888; p. 63–64.

the use of ANHYDROUS LANOLIN *indicated* when SOLUTIONS OF SALTS, or EXTRACTS, *in large proportions*, are to be incorporated with a FATTY SUBSTANCE.

——When large proportions of POWDERED MEDICAMENTS are to be mixed *directly* with ANHYDROUS LANOLIN (*without* the intervention of *Water*), it is advisable to give it *an Admixture* of 30 per cent of OLIVE OIL; or, preferably still, of VASELIN. Such a mixture forms *an excellent Ointment-base*, which is *very easily absorbed by the Skin.*

Ricin—an ALBUMINOID or PROTEID SUBSTANCE—a "*Phyto-Albumose*",—from the SEEDS of *Ricinus communis* (Castor-oil Plant),—is one of the UNORGANIZED FERMENTS, similar to "ABRIN", (described in *this Number*, page 25), and, like the latter, has *extremely intensive Toxic powers* (*including*, also, that of producing "JEQUIRITY OPHTHALMIA").

It is a white, amorphous Powder, most readily *soluble* in a 10-% Solution of Sodium Chloride. PURE RICIN, in Aqueous solution, has a *neutral* reaction.

KOBERT and STILLMARK ([57]) were the first to establish its general properties definitely, and to make an exact investigation of its **Physiologic action.**

The eminent toxic qualities of RICIN appear to hold *no relation* to the familiar effects of CASTOR-OIL.—Administered **Intravenously,** RICIN gives LETHAL EFFECTS in Doses even *below* 0.00003 gramme per kilogramme [3 to 100,000,000] of the animal's weight. **By Mouth,** the LETHAL DOSE for a HUMAN SUBJECT of 60 kilogrammes' [132 lbs.'] weight would be about 0.18 gramme [2 3/4 grains].

When given in Lethal Dose, RICIN causes a **Hemorrhagic Gastro-enteritis,** which, after a rapid decline of the forces, brings-about the fatal termination, either accompanied by Convulsions, or in a condition of Collapse and Somnolence.

—It is to be remarked that DRY RICIN bears a temperature of 100° C [212 F] *without becoming inert;* while SOLUTIONS OF RICIN *wholly lose their active properties* by being boiled.

——**Poisonous Albuminoids similar to Ricin** were detected by the above-named investigators in the SEEDS of *many Species of Ricinus*

([57]) *Arbeiten des Pharmakologischen Instituts zu Dorpat*, 1889; No. III, p. 59.

and in those of *Croton Tiglium* (Croton-oil Plant); also in BARBADOES NUTS (Seeds of *Jatropha Curcas*).—Also, in JEQUIRITY [see "ABRIN", as above].

GATHERED FORMULAS.

INDEPENDENT of the TEXT-MATTER.

9, 10, & 11.—Recent Forms for CANNABIS-INDICA MIXTURES.

Note.—*The 3 following Formulas having been originally based on* BRITISH PHARMACOPEIAL PREPARATIONS, the proportions of INDIAN-CANNABIS TINCTURE (which is about $2\,^2/_5$ times *stronger* according to the process of the Br. Pharm. than according to that of the U.-S.), and of a few other ingredients, have been *correspondingly altered here*,—so as to adapt them to the UNITED-STATES STRENGTHS *of the respective preparations.*

—*In INFANTS' "SUMMER-COMPLAINT".*—BOND and EDWARDS (58).—

Tincture INDIAN CANNABIS	*twenty-four drops.*	
Spirit Chloroform	*five drops.*	
Tincture Kino	3.40 grammes	[1 fl. dr.].
Peppermint-water *to make:*	26.25 "	[7 fl. dr.].
Add:—Distilled Water	3.75 "	[1 fl. dr.].

SHAKE WELL!—*Teaspoonful every 1 or 2 or 3 hours.*

—*In ADULTS' INTENSIVE, LONG-STANDING DIARRHEA.*—BOND and EDWARDS (58).—

Tincture INDIAN CANNABIS	*twenty-four drops.*
Solution Morphine bi-Meconate (1 : 80)	*five to ten drops.*
Spirit Ammonia Aromatic	*twenty drops.*
Spirit Chloroform	*ten drops.*
Distilled Water *to make:*	30 grammes [1 fl. oz.].

Two Tablespoonfuls every 1 or 2 or 3 hours.—STRICT FAST *during the next few hours:*—*only a little* RUM-AND-WATER!

—*In DYSPEPTIC DIARRHEA.*—McCONNEL (59).—

Tincture INDIAN CANNABIS	*twenty-four to forty-eight drops.*	
Bismuth Sub-nitrate	0.6 gramme	[9 grains].
Mucilage Acacia	18.75 grammes	[$4\,^1/_2$ fl. dr.].
Spirit Chloroform	*ten drops.*	
Peppermint-water	26.25 grammes	[7 fl. dr.].

SHAKE WELL!—*Tablespoonful* (OR MORE), *before or after Meals;*—LARGE DOSES *are best taken* AFTER MEALS!

(58) *The Practitioner*, 1887; p. 7.

(59) *The Practitioner*, 1888; p. 236.

STRAY ITEMS.

No. 6.

FORMULAS FOR EIKONOGEN.

—(*See, also:* "STRAY ITEMS", No. 5,—in January Number.)—

I.—For Portraits and Landscapes.

A.—16 oz. Distilled Water,
4 drams Sulphite of Soda (crystals),
120 grains EIKONOGEN.
} *Dissolve.*

B.
16 oz. Distilled Water,
1 ½ oz. Carbonate of Potash.
} *Dissolve.*

(To aid in dissolving the EIKONOGEN, powder it fine, or apply heat.)

Before developing, mix *A* and *B* in equal parts.

II.—For Instantaneous Exposures (say one-thousandth of a second).

And for increasing the power of the Developer No. I in cases where the Plate has not been sufficiently exposed.

5 parts Sulphite of Soda,
2 parts Carbonate of Potash,
1 part EIKONOGEN,
30 parts Distilled Water.
} Place in earthen or enameled vessel;—*dissolve* by boiling and stirring.

After having been allowed *to cool*, the DEVELOPER is ready for use.—Preserve in a tightly closed bottle.

III.—For Bromide-of-Silver Gelatine Paper.

A.—16 oz. Distilled Water,
4 drams Sulphite of Soda,
100 grains EIKONOGEN,
2 drams Glycerin.
} *Dissolve.*

B.—16 oz. Distilled Water,
1 oz. Carbonate of Soda.
} *Dissolve.*

Before developing, mix *A* and *B* in equal parts.

If the DEVELOPER has been prepared exactly according to the above method, it will keep in good condition for a long while.

IV.—Fixing-Bath.

For Plates which have been developed with EIKONOGEN.

The Plates *should be well washed*, and will be greatly benefited by being fixed in a BATH composed of:

1 lb. Hyposulphite of Soda,
1 gallon Distilled Water,
1 oz. Bisulphite of Soda;
} or {
1 lb. Hyposulphite of Soda,
1 gallon Distilled Water,
½ oz. Alum.

SPECIAL NOTES.

1. **Over-exposure** is corrected by transferring the Plate to a tray containing 4 grains Bromide of Potash, 1 dram Glycerin, and 10 ounces Distilled Water. After immersing Plate for two minutes, place it in *old* EIKONOGEN DEVELOPER, or *fresh* DEVELOPER very weak in Alkali. Bromide of Soda added to *new* DEVELOPER, diluted with Water, also compensates for incorrect exposure.

2. **Under-exposure** may be helped by adding to the *normal* DEVELOPER, in a graduate, two to three drops of a Solution of 10 grains of Caustic Soda to 1 oz. of Water; but care must be observed that an excess of Alum does not exist in the Hypo bath, or a streaky and blistered Negative will result. A Preliminary Bath of Hypo—two to three drops of saturated Solution in the *normal* DEVELOPER—helps to bring the *Detail.*

3. **Failures** in developing with EIKONOGEN are mainly due to *impure* Sulphite of Soda. Failures in obtaining density are due to improper Exposure. EIKONOGEN *requires less exposure* than any existing Developer. After details are well out, transfer Plate to a tray containing Water at temperature of 70 degrees, and it will take density enough if allowed to soak for a minute or two.

4. **Distilled Water** can be replaced either by pure Rain-water or *soft* Well-water, *the latter purified* by the addition of 2 to 3 parts of Carbonate of Soda to 1000 parts of Water. Before use, the Water should be allowed to stand until perfectly clear.

5. If **Alum** is used in the Hypo, be careful to *avoid too low a temperature* in winter, or a ruined Negative will be the result.

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Appeal in Favor of the METRIC SYSTEM of Weights & Measures.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, through a SPECIAL COMMITTEE appointed for this purpose at its last meeting, at Toronto, Canada, Sept. 1, 1889, issues an ADDRESS, of which the principal parts are here reproduced:

To the Professions of Medicine and Pharmacy, and the Medical and Pharmaceutical Colleges of the United States and Canada.

"THE METRIC WEIGHTS AND MEASURES were legalized in this country by Congress in 1866, and *are now in actual use* by most Students of Natural History, by some Scientific Periodicals, by the Graduates of our Schools of Civil and Mining Engineering, and especially *by all Scientists and Chemists throughout the world*, without regard to their mother tongue. It is nevertheless *greatly to be regretted*, that a large majority of *our* Physicians and Pharmacists still continue to ignore its merits or discountenance its adoption.

"The merits of the METRIC SYSTEM have been so thoroughly recognized that *it is adopted by most Civilized Nations*. Further argument should be unnecessary to secure *its universal adoption* in OUR HEMISPHERE, where it is already in exclusive use by all the states of Southern and Central America.

"It is a strange and irreconcilable fact, that the Governments of GREAT BRITAIN and the UNITED STATES, or the English-speaking peoples, should *stand quite alone* in their stubborn and persistent adherence to the use of HETEROGENEOUS STANDARDS OF WEIGHTS AND MEASURES, *completely devoid of system in themselves, or of any practical and rational relationship to each other*. And it is especially strange, in view of the Practical Utility of the METRIC SYSTEM, that the PROFESSIONS OF MEDICINE AND PHARMACY in this country should in this respect, at the present time, be *behind* the various Arts of Engineering, as must be conceded by those familiar with the facts.

"This condition of things hinders the proper assimilation of the great mass of Scientific Literature in which the METRIC SYSTEM is exclusively used, tends to increase the risk of errors in our Professional Work, and imposes much unnecessary labor on the Student.

"The argument that OUR SYSTEM OF WEIGHTS AND MEASURES is '*the same*' as that in use in GREAT BRITAIN, with whom we have most intercourse, is *without foundation!* THE SYSTEM WE USE might well be called 'THE AMERICAN SYSTEM', *for no other nation uses it*. The TROY POUND *has been abolished* in GREAT BRITAIN, and no longer appears in their text-books; and *their* FLUID MEASURES *are different from ours* in the proportion of 4 to 5.

"*If Identity is to be established between Our Measures and those of Any Other Nation*, SOME CHANGE MUST BE MADE, and we believe there is substantial unanimity in a *preference for the* METRIC SYSTEM as in place of our OLD SYSTEM, *if any change is made.*

"Every Student of Medicine and Pharmacy is now practically obliged to learn a System of Weights and Measures *new to him* when he begins *Professional Study*. He may have learned the Apothecary Tables in his school days, but *he has not used them*, and as elements of thought the 'GRAIN' and 'DRACHM' are entirely new to him. If the 'GRAMME' and 'CUBIC CENTIMETRE' *were substituted for them*, the change WOULD DIMINISH THE LABOR OF BOTH PROFESSORS AND STUDENTS; and it would *make the Methods of Instruction uniform* in the Chairs of MATERIA MEDICA, PHARMACY, and CHEMISTRY, where now there is confusion.

"*The* U.-S. PHARMACOPŒIA *does not now recognize the* TROY SYSTEM, and if the DOSES were taught *in Metric Terms only*, the OLD SYSTEM *would die out* with the passing-off of the present generation of practitioners.

"It should be particularly remembered that *we are not trying to introduce a New System, but to drop an old one*, which is as irrational and unscientific as any other relic of barbarism.

"*Chemists think in Grammes and Cubic Centimetres only;* and PHARMACISTS and PHYSICIANS *might do likewise*, thus reducing our system *Practically* to *One Denomination* only.

"As the METRIC SYSTEM is *legal throughout the United States*, any Physician is entitled to present a METRIC PRESCRIPTION to the Druggist. All BOARDS OF EXAMINERS IN MEDICINE AND PHARMACY, whether State or Collegiate, are authorized by law to exact, and *should demand, from every Candidate for Graduation or for a License, a knowledge of the* METRIC SYSTEM.

"We also earnestly recommend that SCHOOLS OF MEDICINE *cease to give instruction in the* APOTHECARY SYSTEM OF WEIGHTS AND MEASURES. And we also recommend that *an Addition be made to the Pharmacy Laws* now in force, prescribing that all persons receiving a License to sell Drugs and dispense Medicines *shall be required to provide themselves with a Set of* METRIC WEIGHTS."

—[***Merck's Bulletin*** had, from its commencement, *employed the* METRIC TERMS *exclusively*, and only later *added* their TROY EQUIVALENTS at the special request, and for the supposed convenience, of some of its readers.—ED.]

OREXIN,—*A True Stomachic.*— Prof. Dr. F. PENZOLDT, of ERLANGEN UNIVERSITY, has recently published an exact report (60) on several series of *Physiological and Therapeutical experiments* made by him and under his direction with this New Medicament. In its introductory part he says:

> "Most of the *so-called* 'STOMACHICS' are qualified with this name on account of their supposed *Appetizing* qualities. Among them are: Rhubarb in small doses; Cinchona Tincture; Condurango; and the myriad of so-called 'Bitter principles'. *The valuations set by Practitioners upon these Agents differ very largely;* for, although in many instances a desirable effect on the Appetite seems to have been gained, a really signal success in this direction is a thing of greatest rarity. In the very cases where a Suscitation of the Inert Appetite would be of highest importance,—indeed, *where Life depends on it,—all these Remedies fail.*
>
> "**A True Stomachic** *ought, however, to perform even more than mere Stimulation of the Appetite; it ought to* ENHANCE AND ACCELERATE THE DIGESTIVE ACTION OF THE STOMACH LIKEWISE. Experimental researches on the class of Remedies above-mentioned have shown that there is no more reliance to be placed on them for the latter object than for the former; while, on the other hand, *those few Agents which really have the power, sometimes, of Abridging the Sojourn of the Aliments in the Stomach*, (as, for instance, Muriatic Acid), are, in their turn, NOT PROMINENT IN APPETIZING-EFFECT.
>
> "Thus, if the term 'STOMACHIC' is to be used at all, *Only a Medicament capable of* TONING-UP ALL THE FUNCTIONS OF THE STOMACH, INCLUSIVE OF THE APPETITE, deserves to be called **A True Stomachic.**—SUCH A MEDICAMENT—when applied in the proper class of cases—*I am confident of having found*, in:
>
> **"OREXIN."**

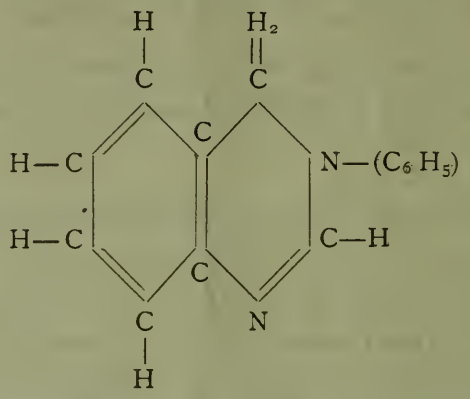
—The following statements are condensed from the body of Prof. PENZOLDT's report:

Description.

Orexin is, in its chemical nature, the ***Hydrochlorate*** of **Phenyl--di-Hydro-Quin-azoline.** This *latter* substance is a *Base*, capable of forming PERMANENT SALTS with Acids. It is *very poorly soluble in Water*, wherefore its **Hydrochlorate,** *which is readily soluble in Hot Water*, was employed in the Professor's experiments, and is by him *recommended for Therapeutic Use as* **An Appetizer and Digestive Aid Combined.**

(60) *Therapeutische Monatshefte*, 1890; p. 59.

PHENYL-DI-HYDRO-QUIN-AZOLINE is represented by the following formule:



[OREXIN, as first prepared in the Laboratory, forms a slightly-yellowish white powder. When drawn into the nostrils, it is liable to give a violent sternutatory effect. Placed on the tongue, it exhibits a bitter taste, which is soon superseded by an intensively pungent sensation.— ED.]

Physiologic Action.

From the experiments made on Rabbits and Dogs, the conclusion was drawn, that OREXIN, taken internally, *is but very moderately toxic;* and that the calculation for an INTERNAL DOSE, *large enough to show Toxic Action* IN MAN, on that basis, would amount to *at least 25 grammes* [over 6 drams]! ONE GRAMME [15 grains] *has been repeatedly taken* by Students without inciting more than barely perceptible nausea, vertigo, and flush.—*On the other hand*, ONE-HALF GRAMME [7 1/2 grains] produced, in healthy HUMAN SUBJECTS, *a strikingly Early and Strong Appetite;* so that the Consumption of Food, in order to satisfy this effect, had to be increased to *twice its usual amount.*— (It was hence that the name "Orexin" was chosen,— from the Greek ὄρεξις = *desire to eat.*)

As to any *Escharotic Topical action*, the experiments showed NONE SUCH on the direct application of OREXIN to the *Mucous membranes* of the Conjunctiva and the Stomach, and to the *Subcutaneous Cellular tissue.*

Effect on Normal Digestion.

The results of HUMAN EXPERIMENTS ON HEALTHY SUBJECTS,— made on the bases of *Comparative Test-repasts of 70 grammes* [2 1/4 oz. Tr.] *of Wheat Bread and of 250 grammes* [8 oz. Tr.] *of Beefsteak, respectively, whose Digestion was scrutinized by quarter-hourly explorations with the* STOMACH--PROBE — were as follows:

"0.25 gramme [3 3/4 grains] of OREXIN, internally, sufficed to **Reduce the Digestive period** of the Wheat Bread *by one-half hour* (being from 3 hours to 2 1/2, or from 2 1/2 to 2), and of the Beefsteak *by 30–38 minutes* (being from 4 1/2 to 4 hours, or from 5 to 4 h. 22 m.); while *the re-appearance of Free Hydrochloric Acid in the Stomach*, in the Beefsteak tests, *took place from one-half hour to one hour earlier, and much more energetically*, than where No Drug had been used.

"By the use of 0.5 gramme [7 1/2 grains] of OREXIN, the **Reduction of the Digestive period** in the Wheat-bread tests amounted to *three-quarters of an hour*, and in the Beefsteak tests to *one full hour*."

Therapeutic Uses.

These were tried by the Professor in a considerable number *of the most various cases* of **Anorexy** (LACK OF APPETITE),— *especially where this condition was a Secondary Symptom;—a Symptom reacting, however, unfavorably on the Primary Ailment;* — as, for instance: AFTER MAJOR OPERATIONS, where final success sometimes depends altogether on the Patient's taking and digesting Food; IN PULMONARY TUBERCULOSIS, where the Lack of Appetite so often renders nugatory all efforts at treatment; IN CHLOROSIS, PLEURITIC EXUDATIONS, PULMONARY EMPHYSEMA, HEART AFFECTIONS; — *and also when* ANOREXY *was the only discernible Symptom of Disease.* (Cases of GASTRIC DISEASE PROPER were so far *but rarely touched*, from caution as to the Irritating — though by no means Escharotic — action of the Medicament on the Mucous membrane.)

THIRTY-SIX MISCELLANEOUS CASES, as above indicated, were thus treated with **OREXIN,** and are reported IN DETAIL, by Prof. PENZOLDT. Of these, the **Combined Results as to Appetite and Digestion Both** are characterized as follows:

Very good - -	in 19	cases,
Good - - - - -	" 8	"
Moderate - - -	" 3	"
Poor or Doubtful	" 3	"
None - - - -	" 3	"
Total:	36	cases.

In some of the *Phthisical, Anemical, and other cases of* REDUCED NUTRITION there were observations on **The Increase of Weight of the Patients**; in other cases (of Dispensary treatment), the figures could not be obtained. Where they were obtained, they were as follows:

"1 PHTHISICAL patient *retained his weight* for months;
1 " " *gained* 6 1/2 lbs. Av. in 5 1/2 weeks;
1 " " *gained* 7 3/4 lbs. Av. in 3 1/2 weeks;
1 ANEMIC patient *gained* 4 1/2 lbs. Av. in 4 weeks;
1 " and EMACIATED patient *gained* 6 lbs. Av. in 8 1/2 weeks;
1 " " " " *gained* 11 lbs. Av. in 11 weeks;
1 SIMPLY ANORECTIC patient *gained* 3 1/2 lbs. Av. in 10 days."

The **Increase of Appetite** was noticeable IN SOME CASES *within a few hours after the First Dose;* IN MOST OF THE CASES, however, *it appeared only after Several Days' Dosing:* sometimes *gradually*, and in other instances *suddenly.*

The Professor's report concludes, from the material so far examined, that —

"**OREXIN** will come to be of a certain importance in the AFTER-TREATMENT OF MAJOR OPERATIONS, in the THERAPY OF INCIPIENT PULMONARY TUBERCULOSIS, in the various ANEMIC CONDITIONS, and in DEFECTIVE NUTRITION *generally*,— for the purpose of IMPROVING THE APPETITE *and thus promoting, or even directly causing, Recovery.*"

—DISAGREEABLE ACCESSORIES *were rarely noticed*, when the proper Doses were adhered-to. (An occasional burning sensation in the Esophagus is ascribed by the Professor to the premature breaking of the *Capsules* employed [*a Drawback Now Avoided by the Use of* **Coated Compressed Tablets**].) —*Vomition* took place in 5 cases out of the 36 mentioned; but always *very transiently and sporadically only.* (An effect on the Phthisical Febrile condition was not observed.)

Dosing.

The MAXIMA employed were of 0.5 gramme [7 1/2 grains] for SINGLE; and *thrice that* for DAILY. Although these Maxima were *not followed by any Disturbance*, still, experience showed that an INITIAL DOSE of 0.3 gramme [4 1/2 grains], *eventually rising* to 0.5 gramme,— administered ONCE, or *at most* TWICE, PER DAY,— *was quite sufficient.*

TO OBVIATE ANY IRRITATION of the Mucous membranes, it is made a **Strict Rule** *to follow-up each Dose by a Copious Draught of Liquid* (MEAT-BROTH, BOUILLON, OR BEEF-TEA, *if at hand;* — *otherwise*, WARM WATER will answer).—Thus, the Prescription will be:

OREXIN,— *Coated Compressed Tablets* (0.1 gramme, = 1 1/2 grain, each, *net*).—Take 3 such — *in middle of forenoon* preferably — *each day.*— If NO

appreciable result appears in the Appetite after *two or three days*, *raise to* 4 or 5 Tablets per Morning Dose; OR, if needed, *to* 3 or more *Twice a Day*. — If NO effect herefrom after *four or five days*, SUSPEND MEDICATION for a few days; *and then recommence* as at first.

In each and every case, **follow-up Each Dose immediately by a Large Cupful of Liquid** (say *Beef-tea* or *Warm Water*)!

Form of Preparation.

N. B.—*In order to avoid all Unpleasantness of Administration, and for Convenience of Dosage*, **Orexin** is sold by Druggists IN THE FORM of *Sugar-coated Compressed Tablets*, containing *0.1 gramme* [1 1/2 grain] *net* of the PURE SALT *each*.

☞[SEE, ALSO: "SPECIFIED ABSTRACT", IN SUPPLEMENT, PAGES 45–48.]

Laudanine, Alkaloid, precipitated. This is *one of the rarer* NATURAL OPIUM-BASES, and has only recently been prepared at all *for sale*,—E. MERCK being the manufacturer.—(*The yield is so small* that a quantity of mother-liquors, yielding a pound of CRYPTOPINE—[*See* "MERCK'S INDEX", p. 41.],—supplied only 5 ounces of LAUDANINE.)

—LAUDANINE *dissolves* with tolerable facility in *boiling* Alcohol; recrystallizing in transparent granules on cooling. It melts at about 166° C [nearly 331 F].—(*Pure* concentrated Sulphuric Acid dissolves it at ordinary temperatures, giving an extremely faint pink tint; the same Acid, containing some Ferric Oxide, produces but a very slightly deeper hue. When these Solutions are heated up to the point where the Acid evaporates, they take a violet color; the coloration being, however, considerably more intensive in the *Iron-tainted* Solution.)

LAUDANINE is a *strong Base*, forming well-crystallizable Salts.—A most remarkable property of LAUDANINE is its *solubility in Sodic or Potassic fluids*,—making it, herein, a parallel to MORPHINE. (But,—while the MORPHINE-SODA COMPOUND can be crystallized only from a highly concentrated, and preferably an Alcoholic, solution,—the LAUDANINE-SODA COMPOUND may be precipitated from its Aqueous solution even by an excess of Sodic liquid; it then appears *in white, resplendent needles*.) By INDIFFERENT SOLVENTS, such as Chloroform or Amylic Alcohol, *not a trace of the Alkaloid can be removed* from SOLUTIONS OF LAUDANINE IN THE FIXED ALKALIS. This proves those compounds to be *True Chemical Combinations*. Hence, LAUDANINE possesses—as truly as MORPHINE does—**a Phenolic character**; which is made evident, moreover, by the well-known Ferric-Chloride test.

—[Great interest was manifested in the question whether LAUDANINE *would be capable of being Methylated, and thus being transformed into an Allied Base*,—analogously to the relation subsisting between MORPHINE and CODEINE.—(HESSE already advanced the hypothesis that such a transformation is possible, and he pointed to an-

other "Natural Opium-alkaloid"—LAUDANOSINE—as being probably the METHYL--ETHER OF LAUDANINE. Actual experiment, however, yielded a different result.)—The same conditions which transform MORPHINE into CODEINE will transform LAUDANINE into LAUDANINE-METHYL ETHER. *This new substance* is very similar, chemically, to CODEINE. It is *a strong Base, insoluble in Sodic liquids;* somewhat soluble in Ammonia-water; very easily soluble in Ether, Alcohol, Chloroform, Benzene, etc.; melting at 113.5° C [236.3 F]. It crystallizes from the so-called "Petroleum-ether" (*Benzinum*, U. S. Ph.) in fine, silky, tangled needles.—Thus, LAUDANINE-METHYL ETHER *is not identical with the Base described by* HESSE *as* "LAUDANOSINE".]

—*A closer study of* LAUDANINE *and its Derivatives*—**Chemically** as well as **Physiologically**—would appear to be, at all events, highly interesting and richly promising.

Mercury Benzoate, Per-oxide Salt, (Mercuric Benzoate), —$(C_6 H_5 C O_2)_2 Hg$ + aq.—Small, white, inodorous, and insipid crystals; *very poorly soluble* in Cold Water; more readily so in Hot Water and in Alcohol.

STUWENKOFF ([61]) administered MERCURIC BENZOATE *with success* in **Syphilis,** as follows:

1.—**Injections** (*1 part* in 120 parts Water, with 1 part Sodium Chloride added): *One Injection daily;*—or:

(1 part in 10 parts Vaselin):—*One Injection per week*,—containing 0.025 gramme [4/10 grain] MERCURIC BENZOATE.

2.—**By Mouth**,—*in Pills*,—0.006–0.012 gramme [1/10–2/10 grain] *per Dose.*

Furthermore, in **Syphilitic Ulcerations,** good service was rendered by COMPRESSES charged with a Solution of 1 part MERCURIC BENZOATE in 500–160 parts Water.

In **Gonorrhea,** a Solution of 1 part MERCURIC BENZOATE in "6666" parts Water is recommended as a URETHRAL INJECTION, *three times per day.*

N. B.—*The latter* prescription appears *rather weak*, compared with that (No. 8) for a similar purpose, quoted in "GATHERED FORMULAS", p. 24 of present Volume.—(*Compare, also, the others* [Nos. 6 & 7], given at the last--named place, with various directions above quoted.)

([61]) *Wiener Medizinische Presse*, 1889; p. 538.

Mercury and Zinc, involute Cyanides, — for Surgical Dressings.

I.—According to Lister (62).

This combination, as recommended by Prof. LISTER for the IMPREGNATION OF SURGICAL DRESSING-MATERIALS,— and made as directed by him,— is a white, micro-crystalline powder, *wholly insoluble* in Water; and *has no action whatever on the Healthy Cuticle.*

—This preparation — while possessing *considerable power to arrest the development of Bacteria* — has *hardly any power of destroying them;* it is, therefore, an **Aseptic,** but NOT an **Antiseptic** in the strict sense (a GERMICIDE); nor is it a DISINFECTANT proper. Hence, in order to give it full effect for Surgical Dressings, it must be *combined with* CORROSIVE SUBLIMATE (Mercuric Chloride). This is done as follows:

> The COMBINATION OF MERCURY AND ZINC CYANIDES ("*Lister's Salt*") is stirred into CONCENTRATED STARCH-PASTE; to this mixture, POTASSIUM SULPHATE is added; and the whole is then dried. The product is then stirred into a SOLUTION of 1 part MERCURIC CHLORIDE in 4000 of Water, and the *Gauze* (or other Dressing-material) *is impregnated* with this paste.

II.—According to Dunstan (63),

the LISTER "Salt", as above described, is NOT (as had been originally supposed) a "*Double Cyanide* of Mercury and Zinc"— that is, a chemical compound of the two Cyanides in molecular proportions,— but *merely a physical involution* of particles of the MERCURY CYANIDE by coatings of the ZINC CYANIDE, occluding the former.

Furthermore, Prof. DUNSTAN showed that the production of that "involute Salt" by Lister's formula yields *a very variable result* as to the respective proportions of the two Cyanides contained in it,— "barely a few per cent of the MERCURY CYANIDE" being discoverable therein at times.

DUNSTAN finally showed how a preparation *far richer in* MERCURY CYANIDE, and *far more uniform* in its composition, can be made; *likewise* containing the Mercury-salt *in a condition of Complete Occlusion* by the Zinc-salt. **This New Preparation** possesses *a greater and more reliable efficacy* than LISTER'S SALT, while being *just as safe* in application. Its proportion of MERCURY CYANIDE runs from 20 to 36 per cent.

(62) *The British Medical Journal*, 1889; p. 1205.
(63) *The Pharmaceutical Journal and Transactions*, 1890; p. 653.

—[E. MERCK has, in consequence of the above-related facts, *ceased employing* the LISTER formula in the manufacture of the INVOLUTE CYANIDES OF MERCURY AND ZINC, *except* when specially called-for; and now uses the DUNSTAN formula *as a rule*.]

—It is understood that a so-called "CYANIDE OF MERCURY AND ZINC, *in equivalent proportions*, in Powder-form," has been offered, which is, however, NOT made *by Physical Involution* (as the above), but MERELY *by Mechanical Admixture* (and Trituration?); and which, consequently, contains the MERCURY CYANIDE *in an open or naked condition*, instead of its being occluded by the ZINC CYANIDE (as it is in the TRUE LISTER or DUNSTAN preparations).—Of course, such a mere con-Trituration of the two Cyanides, in which the Mercury-salt is *unprotected*, *cannot* in any wise *answer the purposes* intended by Profs. LISTER and DUNSTAN; inasmuch as *the entire merit* of the combination of the two Cyanides (as proposed by LISTER and improved by DUNSTAN) consists in the Mercury-salt's being *retained and inclosed* by the Zinc-salt in such a form as to be *insoluble in Water*; which could *never* be the case in a *mere mixture* of the two Salts by mechanical attrition.

—[*See*—on this point—*Report* of the TRANSACTIONS OF THE PHARMACEUTICAL SOCIETY in London, Feb. 12, 1890; and especially SIR JOSEPH LISTER'S remarks in same (64).]

Mercury and Zinc, involute Cyanides, *with Hematoxylin.*—According to a recent communication by LISTER (65), the INVOLUTE CYANIDES OF MERCURY AND ZINC can be made to yield a **Compound with Hematoxylin,** which Compound is capable of being **precipitated or fixed directly on the Surgical Gauze**; thus *avoiding the intervention of Starch-paste* (whose employment is described in the preceding article, on page 39).

—[E. MERCK has placed this HEMATOXYLIN-COMPOUND OF THE MERCURY AND ZINC INVOLUTE CYANIDES on the market, likewise.]

Methyl-Guanidine (*"Methyl-uramine"*) — $HN:C(NH_2)\cdot NH(CH_3)$ — is a colorless, very deliquescent body, of Alkaline reaction; *soluble* in Water; insoluble in Alcohol.

—According to HOFFA (66), METHYL-GUANIDINE *kills* Rabbits quite promptly, with symptoms of DYSPNEA, and CONVULSIONS.

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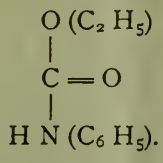
(64) *The Pharmaceutical Journal and Transactions*, 1890; p. 663.
(65) *The British Medical Journal*, 1890; p. 3.
(66) *Berliner Klinische Wochenschrift*, 1889; p. 553.

Mururé Oil,— from the Brazilian plant: *Bichetea officinalis* [Urticaceæ], (so-called "*Mururé*").—This Oil is extensively used, in Brazil, *in grave cases* of **Syphilis.** The Syphilitic Ulcerations are said to be healed by it *very rapidly.*

—Moreover, *strikingly favorable results* were had with Mururé Oil in **Rheumatic Pains.**—This Oil is furthermore lauded as an efficacious **Emmenagogue.**

—Mururé Oil *is given unadmixed*, in Doses of a Large Teaspoonful; — it may so far appear advisable, however, to employ this Medicament *with caution!*

Phenyl-Urethane (*Ethylic Ester of Carb-anilic* [Phenyl-carb-aminic] *Acid*):



White crystals, *insoluble* in Water; easily soluble in Dilute and in Strong Alcohol. Melt at 49° C [120.2 F].

— Giacomini.(67) read a paper to the Turin Academy of Medicine, recommending Phenyl-Urethane as a *reliable* **Antipyretic,** which also exercises *a favorable influence on the general tone of the system.*—The Antipyretic Dose of it is 0.5 gramme [7 1/2 grains],— corresponding to about 1 gramme or 15 grains of Antipyrine.

—In both *Acute and Chronic* **Arthritic Rheumatisms,** somewhat Larger Doses of Phenyl-Urethane than above-stated are apt to *Palliate the Pain* and *Reduce the Tumefaction;* the Analgetic effect is, however, *not absolutely reliable.*

Sodium Silico-Fluoride — [*See* "Merck's Index", p. 132.] — $Na_2 F_2 . Si F_4$, — which was briefly mentioned in this journal two years ago (68), as an **Innocuous Surgical Antiseptic,** has since then been widely applied and favorably commented-on, also as a **General Therapeutic, Hygienic, and Dental Antiseptic,** and as a **Gynecologic Deodorizer;** —

(67) Report by *Deutsche Medizinische Zeitung*, 1889; p. 71.

(68) Merck's Bulletin, 1888; p. 23.

thus repeatedly by W. THOMSON, its first introducer, and by others (69).— [It has also been placed on some markets, and has been professionally discussed, under the empirical name of **"Salufer".**] — The SILICO-FLUORIDE OF SODIUM appears as a white, crystalline powder; which, placed directly *on the Skin*, in Substance and in Moist condition, acts as a strong Irritant.

According to M. ROBERTS (70), SOLUTIONS of this Salt, even as weak as 2 : 1000, *are efficacious.* (The strength of a CONCENTRATED AQUEOUS SOLUTION has before been stated to be of 0.61 %.) — SODIUM SILICO--FLUORIDE **in Solution** is **Not Escharotic,** and consequently is eligible also for the *Washing-out or Syringing* of CAVITIES.

HAYWARD and W. J. SINCLAIR (71) recommend SODIUM SILICO-FLUORIDE as *A Powerful Deodorizer* for Gynecology.

— PENFOLD (72) used the same Salt as a *Detergent* for NEGLECTED TEETH and for the BUCCAL CAVITY,— especially with Patients wearing Artificial Teeth, or Plates. *A Tablespoonful* of the Pulverized Salt is stirred-up in Water, and the Mouth is rinsed with this Ex-tempore Mixture.

After EXTRACTIONS OF TEETH, the SILICO-FLUORIDE OF SODIUM is useful as a **Styptic**; and in the treatment of DISEASED GUMS, as an **Astringent.**

Taxine, the ALKALOID of the *Leaves* of TAXUS BACCATA (*Yew*), appears in whitish laminæ; *difficultly soluble* in Water; *readily soluble* in Alcohol, in Ether, and in Carbon Bi-sulphide. Melting-point, about 110° C [230 F].

TAXINE has hitherto been investigated only **Physiologically.**—According to BORCHERS (73), *Cats are killed* within 15–20 minutes by INTRAVENOUS INJECTION of 0.03–0.05 gramme [$^1/_2$–$^3/_4$ grain] of TAXINE. The Lethal effect is produced in the form of ASPHYXIA,— usually with attendant SPASMS.

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(69) *Deutsche Medizinische Zeitung*, 1889; p. 833; — and elsewhere.

(70). — [As above.]

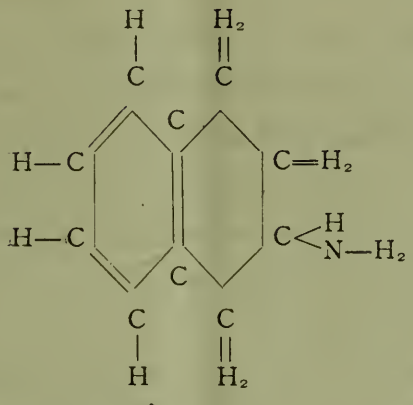
(71) — [As above.]

(72) *Korrespondenzblatt für Zahnärzte*, 1889; April.

(73) "Lehrbuch der Toxikologie", by LEWIN, 1885; p. 253.

"Thermine" may be chosen as the empiric name of a *new* BASE (discovered by BAMBERGER and RUDOLPH MÜLLER), the proper chemical designation of which is :

Tetra-hydro-*beta*-Naphthyl-amine,— corresponding to its structural formule :



TETRA-HYDRO-*beta*-NAPHTHYL-AMINE is a colorless, limpid, slightly viscous *liquid*, of peculiar odor. It has *extremely strong Basic power*,— binding even Carbonic Acid energetically ; so that a drop of it, exposed to the Atmosphere, very soon becomes a *crystalline solid*, in consequence of its transformation into the CARBONATE of the Base.

—As shown by *Filehne* (74), the **Physiologic effects** of THERMINE, or TETRA-HYDRO-*beta*-NAPHTHYL-AMINE, embrace the following two *very strongly marked* characteristics :

Mydriasis ; and
Elevation of Animal Temperature.

The latter effect has been observed amounting to 4.5° C [8.1 F]. (It is in recognition of this *peculiar action* of the substance that the empirical name "THERMINE" is proposed for it.)—[*See, also,* R. STERN'S remarks on its action (75).]

——**Thermine Hydrochlorate** (TETRA-HYDRO-*beta*-NAPHTHYL--AMINE HYDROCHLORATE)—$C_{10}\,H_{11}\,N\,H_2\,.\,H\,Cl$—is in white, well--defined *crystals ;* readily *soluble* in Water, in Alcohol, and in Amylic Alcohol. Melting-point : 237° C [458.6 F].

(74) *Berliner Berichte*, 1889 ; p. 777.

(75) *Virchow's Archiv für Pathologische Anatomie und Physiologie und für Klinische Medizin*, 1889 ; Vol. 115, p. 14.

—As demonstrated by W. DE JONG ([76]), the *Salts of* THERMINE *are not adapted to replace* COCAINE *for* OPHTHALMOLOGY; because their MYDRIATIC action, while *not greatly exceeding* that of COCAINE in intensity, is accompanied by *marked pain.*

Thio-Resorcin, *a Sulphur-substitution Derivative of* RESORCIN, forms a yellowish-gray, insipid powder; *insoluble* in Water, and but *sparingly soluble* in Alcohol and in Ether.

THIO-RESORCIN has been proposed as a **Succedaneum for Iodoform.**—According to communications from Messrs. EWER and PICK ([77]), 5-% OINTMENTS of it have thus been *used successfully* by Director Dr. GUTTMANN in *Crural Ulcers.*

—[This Medicament DOES NOT, however, *appear to be entirely innocuous;* inasmuch as H. AMON ([78]), upon its application to a small Crural Ulcer, witnessed UNTOWARD ACCESSORIES, consisting of Palpebral Edema (Œdema) and of a severely itching Cutaneous Eruption.]

GATHERED FORMULAS.

INDEPENDENT of the TEXT-MATTER.

12.—MEGRIM POWDER.—HAMMERSCHLAG ([79]).

CAFFEINE CITRATE, TRUE	1 gramme [15 grains].
PHEN-ACETIN	2 grammes [30 grains].
Sugar	1 gramme [15 grains].

—(*DIVIDE INTO 10 WAFER-POWDERS.*)—

One Wafer every 2 or 3 hours.

13.—ANTHRAROBIN for Dermatology ([80]).

ANTHRAROBIN	10 grammes [2 1/2 drams].
Vaselin	90 " [2 3/4 ounces].

—(*MAKE OINTMENT.*)—

[*To be applied* to the Diseased parts in ECZEMA SUBACUTUM and CHRONICUM, and in PSORIASIS.—*At the same time, ALKALINE BATHS* are to be ordered.]

([76]) *Nederl. Tijdschr. voor Geneeskunde,* 1888; VI, p. 11.
([77]) [By Letter to E. MERCK.]
([78]) *Münchener Medizinische Wochenschrift,* 1889; No. 32.
([79]) *Therapeutische Monatshefte,* 1889; Aug.
([80]) *Medizinisch-Chirurgische Rundschau,* 1889; No. 5, p. 176.

SPECIFIED ABSTRACT of Thirty-six Cases of *Anorexia* (*Lack of Appetite*), from Various Causes,—treated with **Orexin**; by Prof. Dr. F. PENZOLDT, UNIVERSITY OF ERLANGEN ([81]).—[*See General Report on* OREXIN,—*pages 33–37 of this Number.*]

I.—SURGICAL PATIENTS.

1. M., age 53; female. (Gynecol. Clinique.)—CYSTITIS; old PERINEAL RUPTURE.—Vigorous constitution. Normal Appetite heretofore.—**June 17**: OPERATION on the Rupture. With Normal Traumatic progress,—still, from unknown cause,—COMPLETE ANOREXY (only Coffee and at most half a plate of Soup).—**June 30**: 10 a. m., **0.25 O.** (*), with Bouillon. *Dinner:* One plate Soup, much Meat and Salad.—2 p. m., **0.5 O.**, with Coffee and Bread. 4 p. m., *Hunger:* Bread and Wine. 6 p. m., Supper, with *Appetite.* Thence, to discharge (**July 6**), *perfectly good Appetite.*

2. F. F., age 40; female. (Gynecol. Clinique.)—**May 22**: MYOMOTOMY. Thereupon, for a length of time: FEVER;—later-on: INCONTINENCE; DECUBITUS; great EMACIATION.—CONSTANT LACK OF APPETITE (Wine only; now and then a few spoonfuls of Soup, or a raw Egg; 1/4 Pigeon).—**July 1**: **0.25 O.** No change on that day.—**July 2**: 9.30 a. m.: **0.25 O.**, with Bouillon. At 12 m., *Hunger* (one whole plate Soup; 1/2 Pigeon).—Again: **0.25 O.** At 6 p. m., *Good Appetite* (same repast as at noon). Since that, *Appetite remains tolerable;* Patient recovering slowly but steadily.

3. R., age 7. (Surgical Clinique.)—On account of PERFORATION OF THE VERMIFORM APPENDIX, and GENERAL SANIOUS PERITONITIS, there was performed a LAPAROTOMY and the EXTIRPATION OF THE VERMIFORM APPENDIX. About 8 days after the Operation: FEVER; TOTAL ANOREXY; great EMACIATION.—The child was first given **0.1**, then **0.15**, and finally **0.2 O.** At times, a success seemed to be shadowed forth; but it was assuredly not signal.

4. Sch.; woman. (Surgical Clinique.)—Large PELVIC ABSCESS.—GREAT ANOREXY; violent Pains.—**0.25 O.** No success.

II.—PHTHISICAL PATIENTS.

5. G. W., age 25; Gilder. (Dispensary [†].)—INCIPIENT PULMONARY TUBERCULOSIS.—Subjective Symptons: LANGUOR; COUGH; ANOREXY (no Meat for 2 months). Objective Diagnosis: DULLNESS OVER LEFT APEX, without Bacilli; REDUCED NUTRITION. *Weight, 126 1/2 lbs.*—**July 15**: **0.75 O.**, in 3 equal doses. **July 17**: *Appetite for Meat.* Once: Vomition. **July 18–20**: *More Appetite*, without much more Ingestion. **July 21**: *Ingestion doubled.* **July 24–Aug. 3**: Patient "*hungry all day*" (‖). From the latter date: Less Appetite.—**Aug. 5**: *twice* **0.5 O.**; on the **6th**: *once* **0.5 O.** **Aug. 8**: *Hungry all day.* **Aug. 24**: *Weight, 133 lbs.*

6. E. Sch., age 39; Tailor's wife. (Dispensary.)—INCIPIENT TUBERCULOSIS.—Subjective Symptoms: VERTIGO; HEADACHE; ANOREXY. Objective Diagnosis: DEFECTIVE NUTRITION; moderate FEVER; DULLNESS OVER LEFT APEX, (BACILLI).—**July**

([81]) *Therapeutische Monatshefte*, 1890; p. 62.

(*) "**O.**", *throughout this Report*, means: "OREXIN".—The GRAMME is herein *understood* as the *Dose-unit.*—(Thus: "**0.25 O.**", as above, signifies: "One-quarter of a GRAMME of OREXIN was administered.")

[†] Treatment *at Patients' homes*, on application at Dispensary.

(‖) Statements printed *in* "*Quotation-marks*", as this is, are the *identical words* used by the Patients or their domestic attendants, in reporting to the Physician.

28, morning: 0.25 O.; — noon: 0.5 O. (*ostensibly* as a remedy in "Vertigo" [‡]). **July 30**: *More Appetite;* Vertigo continuing.—**Aug. 6**: in divided doses: 0.75 O. **Aug. 8**: Patient "*can eat all day long*". *Appetite remains good* up to discharge: **Aug. 28.**

7. J. B., age 28; Joiner. (Dispensary.) — INCIPIENT TUBERCULOSIS. — COUGH; ANOREXY; APICAL CATARRH ON LEFT (without Bacilli). — **July 31**: in divided doses: 1.50 O. **Aug. 4**: *Appetite* survenes, continuing till the 10th. — **Aug. 11**: in divided doses: again 1.50 O. *Prompt effect* (*the Patient's wife* "*cannot cook as fast as he will eat*".)

8. K. K., age 28; Spinster. (Dispensary.) — EXTENSIVE PULMONARY TUBERCULOSIS, with HIGH FEVER; EMACIATION; ANOREXY. — **Aug. 7**: *twice* 0.5 O.; on the 8th: *once* 0.5 O. No effect till **Aug. 11.** *Thence*, till the 18th: *Very considerable Increase of Ingestion.* Thereafter, Diminution of effect. — Thereupon, *Repetition of* **same Doses**, *with like Success.*

9. H. J., age 24; Mason. (Medical Clinique.) — PRONOUNCED PULMONARY TUBERCULOSIS, without Fever. — **Dec. 4–6**: once *daily:* 0.3 O. Thence, *Appetite good.*

10. F. V., age 23; Tailor. (Medical Clinique.) — DISTINCT PULMONARY TUBERCULOSIS, without Fever. — **Nov. 29 & 30**, and **Dec. 1**: *each* 0.3 O. *Slight Improvement of Appetite.*

11. J. W., age 23; Tailor. (Medical Clinique.) — DISTINCT PULMONARY TUBERCULOSIS. — **Nov. 22–25** once *daily:* 0.3 O. *Large Increase of Appetite*, from the 25th.

12. C. B., age 28; Laborer. (Medical Clinique.) — DECIDED FEBRILE PULMONARY TUBERCULOSIS. — **Nov. 29 & 30**, and **Dec. 1**: *each* 0.3 O. Thence, during 3 weeks, *Continuous Improvement of Appetite, with Increase of Weight.* Thereafter, Recession of Appetite. — Since then, *one Repetition* of **above Dosages**, without effect.

13. K. B., age 29; Turner. (Medical Clinique.) — DECIDED FEBRILE PULMONARY TUBERCULOSIS. — **Nov. 18**: 0.25 O; and **22nd** and **23rd**: *each* 0.3 O. *Appetite permanently augmented.*

14. Sch., age 45; female. (Dispensary.) — INCIPIENT TUBERCULOSIS. — After 1.0 O., divided, — *at once Improved Appetite.*

15. J. O., age 20; Clerk. (Dispensary.) — PULMONARY TUBERCULOSIS. — For weeks, *only Liquid Food!* — **July 19 & 20**: *each* 0.5 O. *No immediate effect.* **July 21 & 22**: *Good Appetite* (Meat). **July 23**: Vomition. — **July 24**: 0.5 O. Thenceforth, Patient *eats 5–6 times per day.* From beginning of **Sept.**, Patient still *eats fairly well;* but no Meat. — **Sept. 7, 8, & 9**: *each* 0.5 O.; but no Meat-Appetite thereon. *Weight: 109 lbs.* — Since then, O. given *repeatedly*, with *good effect.* **Dec. 6**: *Weight, 109 lbs.*

16. R. B., age 45; female. (Dispensary.) — SEVERE PULMONARY TUBERCULOSIS, and FLOATING KIDNEY, with intensive ABDOMINAL PAINS. — After 0.25 O., some Pain in Stomach, and regularly *Hunger in evening*, but no continuous Appetite.

17. W. G., age 20; Goldsmith. (Dispensary.) — INCIPIENT TUBERCULOSIS (with BACILLI). — **July 11**: 0.25 O., without effect. — 12th: 0.25 O., *with distinct effect.* — 13th: 0.5 O.: *still better effect.* — 14th: 0.25 O.; 19th & 20th: *each* 0.5 O. **July 27**: *Weight, 117 3/4 lbs. Appetite continuously good.* — **Aug. 11 & 15**: *each* 0.5 O. **Aug. 20**: *Weight, 125 1/2 lbs.*

III.—GASTRIC PATIENTS.

18. J. W., age 28; female. (Private Practice.) — CHRONIC GASTRIC CATARRH, and FLOATING KIDNEY. — Since several months, Patient's Stomach is washed out regularly once a week, 5 hours after a predetermined Test-repast; whereby invariably a large amount of UNDIGESTED MATTER is found. — After 0.25 O., *the Digestion was found to be distinctly improved.* The appetite was not improved.

[‡] "The Patients *were never told what action was expected* from the Medicament; so as not to incur the liability of '*suggesting*' an Appetite."—*Prof. Penzoldt.*

19. E. F.; Student of Medicine.—GASTRIC CATARRH (?). NO APPETITE.—Dec. 13: in divided doses: 1.0 O. No effect.—Dec. 17: in divided doses: 1.0 O., *with 10 drops* DILUTED MURIATIC ACID. *Appetite better.*—Dec. 20: Same Dosage. *Appetite permanently good.*

IV.—VARIOUS PATIENTS.

20. L. B., age 54; Glover. (Dispensary.)—Since beginning of June, various attacks of symptoms of INTESTINAL STRICTURE, without evident cause; thence, great EMACIATION and CONTINUOUS ANOREXY. July 7: *Weight, 108 lbs.—Three doses* of 0.5 O. each, on that day. *Effect distinctly setting-in* on July 11. *Appetite good till* Aug. 19. On that day, SEVERE ATTACK, followed by COMPLETE ANOREXY.—Aug. 21: Repetition of same Dosing as above. Aug. 23: *Re-commencement of good effect*, and *Continuance* thereof since then. Sept. 23: *Weight, 119 lbs.*

21. M. P., age 60; Widow. (Dispensary.)—MITRAL DEFECT; ARTHRITIS; ALBUMINURIA; LONG-STANDING ANOREXY.—Aug. 7: in three doses: 0.75 O. On the 9th & 10th: *Augmented Appetite;* on the 12th: *still more so* (Patient "*ate as much in one day now, as in 6 weeks formerly*").

22. M. H., age 62; Widow. (Dispensary.)—EMPHYSEMA; CARDIAC WEAKNESS.—From Oct. 28: 0.3 O. *once a day:*—2.0 *Total.* Nov. 2: *Appetite enhanced; General Health improved.*

23. J. W., age 63; Peddler. (Dispensary.)—ALCOHOLISM; MUSCULAR INSUFFICIENCY OF HEART; EDEMAS.—0.5 O., *three times per day*, tried repeatedly, without effect.

24. B. W., age 33; Glove-seamstress. (Dispensary.)—MYOCARDITIS (?); ANEMIA.—Sept. 17: in three doses: 1.0 O. Sept. 20: *Very good effect. Weight*, on that day, *100 lbs.*—Sept. 28 & 29, and Oct. 1: *each* 0.3 O. *Appetite very good. General Subjective condition good.* Oct. 17: *Weight, 104 1/2 lbs.*

25. J. P., age 62; Laborer. (Dispensary.)—TABES.—In violent GASTRIC CRISES, 0.5 O., *three times in one day*, without any effect.

26. S. V., age 27; female. (Dispensary.)—MYOMA OF UTERUS; EXCESSIVE ANEMIA.—Tried O. very often, in most various Dosage. No success at outset. Frequent Vomition. Finally, however, *Appetite improving* (whether in consequence of this medication, remains undetermined).

27. J. E., age 39; Weaver. (Dispensary.)—ANEMIA.—From July 31: 0.5 O. three times a day. Aug. 4: *Appetite (permanent).* Aug. 12: *Resumed work.*

28. J. W., age 43; Joiner. (Dispensary.)—ANEMIA; DEFECTIVE NUTRITION.—Repeated Dosing with O.: at first 1.5 *daily* in three doses; afterwards 1.0 *daily;*—*each time with success.* Sept. 6: *Weight, 148 1/2* lbs.; Nov. 5: *154 1/2 lbs.*

29. B. D., age 31; Tailor's wife. (Dispensary.)—DEFECTIVE NUTRITION.—On 0.75 O., in three doses, in one day, *Appetite survened* after 2 days. 3 days after stopping Medication, Vomition took place; but *Appetite continued.*

30. A. M., age 18; female, Brush-maker. (Dispensary.)—CHLOROSIS.—0.75 O., in 3 doses, on one day. *Good effect, permanent*, from the third day.

31. Ch. S., age 12; female. (Dispensary.)—DEFECTIVE NUTRITION.—From Nov. 2: 0.4 O., in two doses, *per day:*—2.0 *Total. Appetite largely increased* on Nov. 5.

32. W. H., age 20; Printer. (Dispensary.)—ANEMIA.—Oct. 15: 1.0 O., in three doses. 17th: *Increased Appetite.*—Oct. 19: same Doses again. *Appetite very good* (Patient never ate much before). Oct. 28: *Resumed work.*

33. M. Sch., age 56; Spinner's wife. (Dispensary.)—ANOREXY.—0.3 O. per dose and day, *for three successive days. Appetite considerably augmented.*

34. M. R., age 30; Tailor's wife. (Dispensary.)—DEFECTIVE NUT *Good success*, as in the preceding case.

35. J. P., age 40; Brewer. (Dispensary.)—EXUDATIVE PLEURISY.—U 3: FEVER; ANOREXY.—**Aug. 11, 12, & 13**: *each* **0.5 O.** Vomition after first D distinct result.—Nor after a repetition of **0.5 O.** *each* on **Aug. 18, 19, & 20.**—**Sept. 8, 9, & 10**: *each* **0.25 O.** *Now the Appetite came intensively and permanently* (P "*unable to sleep for Hunger*").

36. S.; Laboratory Porter.—TOTAL ANOREXY since many weeks. S *Weight, 144 lbs.*—After **0.4 O.** *per day* for five days (Total: **2.0**), *Appetite m proved.*—**Sept. 12**: once more **0.4 O.** *Appetite excellent* (*ate 3 Suppers* that n **Sept. 17**: *Weight, 147 1/2 lbs.*

On the above-reported Cases, and *on the Inferences that may be d from them legitimately*, Prof. PENZOLDT expresses his views as follow

"The DISPENSARY material among these cases (to which class the majority of them belongs) naturally offered somewhat greater difficulty of closely observing and accurately measuring the effects attained, than did the cases treated in the various NIQUES; but this drawback is more than compensated by the circumstance that DISPENSARY Patients *remained in their accustomed surroundings and largely under t usual conditions of life* during the entire course of treatment."

> [Hence, the results obtained on this class of Patients *are all the more telling*, as being asc able wholly, or almost wholly, to the MEDICAMENT employed, and not to Hospital Diet a other Sanative and Hygienic provisions as made in Institutions.—ED.]

"Furthermore, the notorious INDOLENCE and REFRACTORINESS prevalent amon just that class of patients made it evident from the outset, that FAVORABLE RESULT *would be reported to the Physician only on very decided evidence thereof; while* UNFAVORA BLE ONES *would be mentioned on the slightest disturbance of the Subjective condition.* This is a point of high importance for the *unbiased estimation of the Working-value* of a MEDICAMENT, the effects of which are *mainly to be learned from the Patient's statements*, or from those of his family.

. . . . . "*In finally recommending* **OREXIN** to my Professional Brethren for further experiment, *I add the explicit request*, that they will EXPECT NEITHER MORE NOR LESS from this New Medicament THAN WHAT APPEARS JUSTIFIED by the above—conscientiously explored, but nevertheless necessarily limited—material.

"The necessity in which the Physician is sometimes placed, of successfully combating the Symptom of ANOREXY, is indubitable. The frequent occurrence of a Causal Indication, as it were, for the *Removal of this Phenomenon* which prevents all Improvement of the Nutrition, is just as evident. Thence, *it must be permissible to try a newly recommended* MEDICAMENT *which*, WHILE INNOCUOUS IN PROPER DOSE, *is capable —according to my experience and that of some Professional friends of mine—in many cases, of* RESUSCITATING THE LONG-LOST APPETITE AND REINFORCING THE GASTRIC DIGESTIVE POWER, and thereby favorably influencing the Pathologic processes.

"I mean, of course, *neither* to advise the abandonment of whatever Auxiliary Treatment may be deemed favorable for the Stimulation of the Appetite and the Digestion; *nor* to assert that **OREXIN** must prove efficacious in every instance.

. . . . . "But I wish to suggest that this NEW MEDICAMENT *be tried*, and that a greater and broader array of experiences, than what I have been able here to submit, be thus gathered, concerning *the remarkable action of* **OREXIN**."

LIBRARY CUES.

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No. 3.

ALFRED BINET:—

THE PSYCHIC LIFE OF MICRO-ORGANISMS.—(*Translated from the French* by THOMAS MCCORMACK.)—133 pages.—Cloth, $0.75.—[THE OPEN COURT PUBLISHING CO., Chicago.—1889.]

There is probably no class of Naturalists—or, indeed, of Scientists of any order—to whom the rest of us owe a deeper gratitude for their self-sacrifice in research, than to the MICROSCOPISTS. The Anatomist, while dissecting Cadavers, knows he is running the risk of Septicemia, and can guard his hands accordingly; the Chemist, preparing Explosives, or Caustic Vapors, may protect his face and lungs; but the Microscopist *knowingly and irredeemably sacrifices* a portion of his Eyesight for every discovery he is enabled to commune to the World of Unarmed Vision.

In proportion to the cost, however, *stands the value* of the information thus gained. The results of Microscopic investigation, which have already revolutionized ETIOLOGY and NOSOLOGY, and are slowly bringing THERAPEUTICS to wholly new positions in consequence, now bid fair also *to give an entirely different direction from the hitherto accepted*, to PSYCHOLOGY AT LARGE, and to BIOLOGY,—viewed as sciences relating to the ESSENCE AND NATURE OF "ORGANIC" LIFE GENERALLY.

The intensive bearing of Microscopic findings on these ultimate themes of Natural research is apparent from a perusal of the little treatise above named, into which are condensed the deductions drawn by an acute and palpably honest mind from the labors of such ardent, patient, and persistent *explorers of the "Micro"*, as BALBIANI, BÜTSCHLI, GRUBER, MAUPAS, FOL, ENGELMANN, and a dozen others; who are quoted, verbally and by occasional *pictorial illustration*, in support of the Author's theory.

This theory may be briefly summarized thus,—that the *Primordial Forms of Animal Life*, the Simplest Protoplasmatic Cells, *contain the Germs of All Psychic Development* as witnessed in the Higher Orders, in quite the same sense and to the same average measure in which they contain the Elements of Complex Physiologic Growth and Evolution.

The Author states, in his SPECIAL PREFACE written *for the American Edition*, his belief that "*a Higher Animal is nothing more than a Colony of Protozoans*". His text shows that he *means to have this statement cover* the Substance and Manifestations of what is called "SOUL", fully as much as it does the Components and Functions of the LIVING BODY.

The reader who will take the pains to follow the Author throughout his lucid but scientifically strict course of demonstration, will learn that the "MICRO"-WORLD contains as varied and variegated, albeit not as highly differentiated, Forms of Life as the MACROCOSM. Numbers of them are here traced, for evidences of their Psychic Life, through all the observed intricacies of their MOTORIC, NUTRITIVE, and REPRODUCTIVE phenomena. To a Physician or other Naturalist unacquainted with the deeper recesses of Microscopic lore, the reading of BINET's book may convey revelations as astounding and captivating as the "Arabian Nights" would to a child,—yet with the precious advantage of *Truth* superadded.

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   ——Thus being, at once:—*The Best* "ANTISEPTIC" (Germ-Arrester);
   A Perfect "DISINFECTANT" (Germ-Destroyer) *in the Living Body;*
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   ——*Preferable*—in ANTISEPTIC SURGERY, THERAPEUTICS, and PROPHYLAXIS—*to Corrosive Sublimate*, *Silver Nitrate*, *Carbolic Acid*, *Iodoform*, *Creasote*, and *all the other* Substances of similar use,—*as applied to the Human or Animal Body*,—in consequence of both its Unparalleled *Efficacy* and its *Innocuousness* 49

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"PYOKTANIN"

—a New Antiseptic—is presented by its Discoverer, Prof. Dr. J. STILLING, of STRASSBURG UNIVERSITY, as a **True but Harmless Therapeutical Disinfectant,**—that is: An ABSOLUTELY SURE AND YET PERFECTLY SAFE BACTERICIDE,—*Eminently Adapted for Permeation through* Animal Tissues and Fluids in the Living Body;—because it is:

1st,— **Devoid of Any Injurious Effect on the Human or Animal Economy or Organism;**

2nd,—**Certainly and Utterly Destructive of All Bacteria or other Micro-organisms Absorbing it;**

3rd,—**Rapidly and Completely Diffusible in, and Permeant of, Both Healthy and Diseased Animal Tissues or Fluids, and Perfectly Penetrant Through the Enveloping Membranes and Internal Substance of all Bacterial Colonies Harbored by them.**

These qualities make it NOT ONLY

The Best "Antiseptic"

(GERM-ARRESTER) now known to Medical Science; but—what is immeasurably more—

A Perfect Practical Medicinal "Disinfectant"

(GERM-DESTROYER *in the Living Body*).

It is, in fact,

The Only Eligible MEDICINAL DISINFECTANT Known; because *No Other Substance* has as yet been ascertained to possess the qualities above enumerated as pertaining to PYOKTANIN,—*qualities essential*, however, *to the Efficacious and Safe Disinfection* of all PURULENT, GANGRENOUS, SEPTIC, SYPHILITIC, TUBERCULAR, OR OTHER MICRO-PARASITIC Morbid processes.

—To gain an appreciation of the already established unparalleled virtues of PYOKTANIN, and receive an intimation of

the almost illimitable possibilities attaching to it, *one must distinguish strictly* the merely "ANTISEPTIC" action of Medicaments from the action properly termed "DISINFECTANT" (*as when applied to the Living Body*).

There are many ANTISEPTICS known and used at the present day; but *very few* REAL MEDICINAL DISINFECTANTS; and *none of the latter act in a manner satisfactory to the Therapeutist.* A "WEAK ANTISEPTIC" *Merely Retards the Growth, Development, and Propagation* of Micro-organisms; a "STRONG ANTISEPTIC" *Arrests or Suspends these Phenomena; the* "STRONGEST ANTISEPTICS" may be termed "DISINFECTANTS," inasmuch as they NOT ONLY ARREST OR SUSPEND *the Life-phenomena of Micro-organisms,* BUT DESTROY *their Vitality totally*, beyond the possibility of resuscitation.

Of such "STRONGEST ANTISEPTICS," which might be truly called "DISINFECTANTS," *there were none hitherto known that could be Applied to the Tissues or Fluids of the Living Body without producing harm along with good;* for they are, without exception, INTENSIVELY TOXIC SUBSTANCES,—*none of which have,—when diluted* to an approximative degree of Harmlessness to Human Life and Health,—*still Sufficient Disinfectant Power left to be Reliably Efficacious* in the Destruction of Micro-organisms.

Besides, many of the ANTISEPTICS hitherto employed on or in the Human Body are, by their chemical nature, prone to form **Insoluble Compounds** (*Precipitates*) with a portion of the Organic matter they necessarily encounter when so applied,—thus forming **Protective Deposits** *around or over those Strata of Bacterial Colonies* which are somewhat removed from the surface; whereby the further inward progress of the Medicament, and, consequently, *any thorough Sterilization of the Inner Layers of a Diseased part, is effectually prevented.*

—This is true, more or less, of all the METALLIC SALTS, and of a number of other Compounds, employed as Medicinal Disinfectants or Antiseptics.

— —Thus it is that, despite all the efforts of Modern Antiseptic Surgery, **No Medicament** has hitherto been had that *would exterminate Pyoid and other Septic Growths* in Wounds, Sores, Ulcers, and other Pathologic conditions susceptible to or dependent on PARASITIC INFECTION; and that would thus exercise, NOT MERELY *a Disease-impeding*, BUT *a Direct and Certain Healing action* in such cases.

—**PYOKTANIN**, however, as shown by Prof. STILLING'S report, in virtue of its above-enumerated qualities *does all this;* and promises to do *yet far more* when the proper conditions and methods for its application in other cases shall have been ascertained.—

As reported by its discoverer and others,

"PYOKTANIN" HAS SO FAR ABSOLUTELY CURED:

Pyoid Corneal Ulcers - - -	*in one day;*
Hypopyon-keratitis - - -	
Marginal Eye Ulcers - - -	
Parenchymatous Keratitis - -	*in a week or two;*
Serous Iritis - - - - -	
Panaritium - - - - - -	*in two days;*
Varicose Ulcers - - - -	*in three days;*
Burns, Purulent Sores, and Lacerations of various kinds - - - - -	*in astoundingly brief periods;*—
(*Also:*) Epizoötic Eczema *of Horses and Cattle* - - - - - -	

AND HAS SIGNALLY BENEFITED:

Long-standing Disseminative Choroiditis;
Sympathetic Ophthalmia;
Extended Chancrous Ulcers;—

AND APPEARS INDICATED IN:

Dermic and Syphilitic Diseases generally;
Diphtheria; Pyoid Pleurisy; Peritonitis;
Typhous and Dysenteric Intestinal Ulcerations; etc., etc., etc.

— In view of the demonstrated

ABSOLUTE HARMLESSNESS OF "PYOKTANIN" TO THE HUMAN OR ANIMAL ECONOMY,

when administered in MEDICINAL DOSES,—*even in the Natural Cavities of the Body*,—there appears to be no reason why it should not be tried in :

Tubercular processes
Syphilitic disorders } of every kind ;
Contagious diseases

and in All Pathologic Processes Whatever *that are based upon or complicated by any species of*

PARASITIC INFECTION.

— From the reports so far received, it appears evident that

"PYOKTANIN" MUST SUPERSEDE:

NOT ONLY

Corrosive Sublimate, Carbolic Acid,
Iodoform, Silver Nitrate, Creasote ;

BUT ALL THE OTHER

CHLORIDES, IODIDES, MERCURIC and other METALLIC COMPOUNDS, and the various PHENOLS ;—

IN ONE WORD :—

ALL THE KNOWN "DISINFECTANTS" AND ANTISEPTICS

—as applied to the Human or Animal Body—

for all those cases Where Any Sure and Safe BACTERICIDAL ACTION is Indicated and Needed.

N. B.—PYOKTANIN *is absolutely Inodorous !*

☞ PYOKTANIN possesses *either a Blue or a Yellow coloring property* (representing 2 kinds !).—The **Colorific effect** of the BLUE VARIETY *is of the very highest importance and value* in many classes of operations ; for, in all EXTERNAL APPLICATIONS, it *serves as a Sure Indicator and Guide* to the Operator's eye and hand,—showing him clearly *how far* the Disinfecting Substance *has spread* laterally ; and, in some instances, also in depth.

N. B. — **INDICATIONS and DIRECTIONS for USING the various Pyoktanin Preparations,** *see pages 69–70.*

PROFESSOR STILLING'S PRELIMINARY REPORT (*)

ON PYOKTANIN.

—["First Paper."]—

"Despite the pervading theoretic changes which Modern Bacteriology has wrought in all departments of Medical Science, it has so far accomplished but little in Practice. Antisepsis in Surgical Operations had been introduced already before Koch, by Lister; and if it has grown in theoretical insight, it has withal no great practical results to show. For not even the introduction of Corrosive Sublimate into Surgical Practice can be termed such; in view of the fact that Surgeons have to deplore a number of deaths with it.

"While, therefore, even Purely Mechanical Surgery—notwithstanding all Bacteriologic knowledge on Pyogens—*is still in search of an Agent for merely Sterilizing the Field of Operation* [an Antiseptic], *it has hitherto been still farther from possessing an Agent capable of Extinguishing Purulent Inflammations already developed* [a Disinfectant]. The highest achievement attained in this direction is the treatment of Corneal Ulcers by Galvano-cautery; thus covering a very limited territory.

"The question why our accustomed Antiseptics and Disinfectants (such as we have) are totally or almost totally *inefficient in once developed* Purulent Inflammations, does not seem difficult of decision. They are mostly differential Substances, acting toxically on the Human organism; *and still* not reaching all the points on infected Wound-surfaces which they ought to reach, in consequence of their Lack of Diffusibility and their Proneness to Precipitation.

"A Truly Disinfectant—*that is:* Pyoktanic (Pus-destroying)—

(*) This "First Paper," as the Author terms it, will be followed by a Second one in "Merck's Bulletin" as soon as the Professor's *Comprehensive Clinical Experiments*, at present in progress, are concluded and summed up.

AGENT must be capable of Devitalizing the Pyogenic Bacteria, while itself in a state of Concentration which is *not hurtful to the Human organism.* It must at the same time be *very highly diffusible*, in order: Firstly, to reach *all* the points on a Wound-surface where Pyococci (Pus-cocci) are located; secondly, to *penetrate* the Mucous membranes of the Micro-organisms easily; and lastly, to destroy these latter also where they exist in *Swarms.* An only *moderately* diffusible Agent may indeed kill the Cocci forming the outer stratum of such a swarm; but these may then act as a protective envelope toward the still living ones in the interior; and the dead ones will finally be thrown off, while those preserved in the nucleus will go on forming fresh cultures.

"—I have discovered that certain groups of Colorific COAL-TAR DERIVATIVES *possess all the properties* to be demanded of A REALLY GOOD MEDICINAL DISINFECTANT, *which shall not alone Prevent Infection, but which must also be charged with the task of successfully Combating ready-developed Purulent processes; and that almost all the known Pathogenic Micro-organisms—Anthrax Bacilli and Pyococci (Pus-cocci) foremost among them—readily accumulate such Colorants within their own bodies, just as larger plants do, and succumb to their toxic agency.* Anthrax Bacilli, Pyococci, etc., as may be readily observed by the microscope, imbibe those Colorants like a sponge; so that the Bacteria may be noticed as being already deeply dyed before any of the Colorific liquid itself becomes discernible in the field of vision; and *the moment the intensive Coloration is accomplished, every Swarming Motion ceases:* the Cell dies!

"I have made the attempt to adapt for Medical practice this fact, which had occupied my mind for some years past, with the view of finding An Efficient Remedy for the Deleterious Inflammations of the Conjunctiva, for Blennorrhea neonatorum, for Diphtheria, etc.

1. Botanic and Bacteriologic Experiments.

(Instituted with the aid of Dr. J. WORTMANN.)

"I have demonstrated that—above all other Colorific substances of the numerous Coal-tar groups—various METHYL and ETHYL SUBSTITUTES of the TRI-AMIDO-TRI-PHENYL-CARBINOL and TRI-AMIDO-DI-PHENYL-TOLYL-CARBINOL Structures are qualified eminently *To Prevent the Development of Bacteria.* A compound of certain of these Substitutes, *specially prepared in a state of extreme purity and high diffusibility*, was finally selected by me as *the most efficacious and desirable product* for the purposes above indicated. For brevity's sake, I shall denote this very complex compound by the general name of **PYOKTANIN** (= PUS-KILLER; from *πῦον* = *pus*, and *κτείνω* = *kill*),—distinguishing it, when necessary, as '**Blue Pyoktanin,**' from another variety, subsequently to be mentioned, which is of a *Yellow* color. (*Where no remark to the contrary is made*, I have *always*, in the experiments here recorded, used the 'BLUE' variety.)

"As will appear later in the course of this report (see the account of *Ophthalmological and other Therapeutical Experiments and Experiences*, in PART 3 of this Paper!), *the Selection and Procuration of* CERTAIN DEFINITE CHEMICAL COMPOUNDS ONLY, out of the so exceedingly numerous Coal-tar series, *was* NOT ALONE *necessary*, in order to attain *The Highest Possible Disinfectant Effect;* but *the* HIGHEST ATTAINABLE DEGREE OF PURITY *had also to be secured for the substances thus selected*, in order to render them fit for SAFE APPLICATION IN SURGERY AND MEDICINE.

"— — — *In order to be quite certain of obtaining* ONLY THE PURE SUBSTANCES ASCERTAINED BY MY EXPERIMENTS AS HAVING THE HEREINBEFORE AND HEREINAFTER DESCRIBED BENEFICIAL EFFECTS, *I procured them from E. MERCK*, WHO ALONE *is enabled and authorized by me to prepare and sell* THE EXACT AND IDENTICAL SUBSTANCES referred-to above as '**PYOKTANIN.**'

"The initial results obtained by specific tests on the ANTIZYMOTIC properties of this **Pyoktanin**, were as follows:

"Paste, prepared from Wheaten Flour and a 2-per-1000 Solution of **Pyoktanin,** *does not sour;* no matter how long it may stand. Milk, dyed with **Pyoktanin,** does not turn; only, later-on, Mold Fungi colonize on the *Cream*-stratum that has meanwhile gathered. Butter and Lard, likewise, with an admixture of **Pyoktanin,** do not become rancid.

"— —In testing a substance for its possible ANTISEPTIC AND DISINFECTANT PROPERTIES, it is advisable, in order to proceed systematically, that MOLD FUNGI and PUTREFACTIVE BACTERIA be employed.

"Of such MOLD FUNGI, we deemed the MUCOR STOLONIFER best adapted for our experiments, on account of its exceedingly rapid growth and its high resistance. Comparative tests were made with this Fungus in the following manner:—It was disseminated on a series of bread-rolls, some of which had been moistened with Solutions of **Pyoktanin** of from 1:500 to 1:1000; while the rest were moistened only with Water. On the latter, the Fungus attained complete and very luxuriant development,—being about entering the fructifying stage,—within 24 hours; while the rolls treated with the Dye refrained from exhibiting any vegetation; and, *although continually kept moist for a fortnight, not a trace of Mycelium could be detected on them.—This behavior was witnessed both under Artificial Impregnation and Spontaneous Infection.*

"Further experiments were instituted *by painting* surfaces of a mixture of Sugar, Meat-extract, and Gelatin, *in streaks and spots*, with a half-per-cent solution of **Pyoktanin**; and then breeding cultures, of MUCOR STOLONIFER not only, but also of PHYCOMYCES NITENS and of PENICILLIUM GLAUCUM, on those surfaces. As soon as the Mycelium, luxuriantly développing and vigorously growing in the normal Mixture, and centrifugally spreading, reached the painted spots or streaks, *it was arrested*, and the further development of the Fungi was inhibited.—This test is quite particularly instructive, and adapted for a convincing demonstration.

"—*In order to establish conditions more similar to those usually existing in the Living Organism* when Antiseptics are applied, further Cultures were bred, in Sugared Solution of Meat-extract. Various portions of this Solution, in open tumblers, were exposed to *Spontaneous Infection*

at ordinary domestic temperature. Among them were portions of the Plain Solutions, and other portions prepared with the addition of 1 : 1000, 1 : 2000, and 1 : 3000, of **Pyoktanin.** After only four days, the Plain Solution exhibited intensive Cultures of PENICILLIUM; while *the Colored Solutions had remained entirely intact.* These were now *artificially inseminated* with Spores of Penicillium. In addition hereto, further portions of Sugared Solution of Meat-extract were exposed, after having been colored *with smaller proportions of* **Pyoktanin** than above-stated; to wit,—0.17 : 1000, 0.08 : 1000, 0.04 : 1000, 0.02 : 1000, 0.01 : 1000, 0.005 : 1000, 0.0025 : 1000. All these were likewise inseminated with Spores of PENICILLIUM. The Weak Solutions —up to 0.04 : 1000, (= 1 in 25,000)—showed a normal growth of the Fungus. The 0.08 : 1000 Culture (= 1 in 12,500) showed small, rugged agglomerations of Mycelium *on the surface* (Air-mycelium), *with hardly any Mycelium in the liquid*, and no fructification,—*eleven days after the planting.* On the 0.17 : 1000 Culture there was a similarly characterized result, only with the agglomerations still fewer and much smaller,—likewise unfructified; while the three stronger-dyed Cultures *remained wholly free from Fungi.*

"—To establish conditions *still more closely* resembling those of the Living Organism, tests with PUTREFACTIVE BACTERIA were made as follows:—Solutions of **Pyoktanin** were prepared, of strengths varying from 1 : 1000 to 1 : 64,000. Of each of these, 60 cubic centimetres was put into a small vial. A similar vial was supplied with Pure Water. Thereupon, after a piece of Raw Beef was placed in each of the vials, these were stoppered with cotton; and then all were deposited in a Thermostat kept at 25° C, to be abandoned to *Spontaneous Putrefaction.* A great number of different Coloring-matters more or less allied to **Pyoktanin** were tested in this experiment, alongside of it; but none were found equal to it in action. Each Culture was taken out from the apparatus once a day,—each time just 24 hours from its last removal,—to be microscopically examined for Putrefactive Bacteria. These examinations were repeated during 5 days.

"The *Water-filled vial* exhibited *Stinking Putrefaction* already at the end of the first 24 hours.

"On the 6th day, *in some* of the vials containing **Pykotanin** 1 : 4000, *no Putrescence* had formed; in *all those* containing 1 : 2000 or 1 : 1000 there was *no sign of any change whatever.*

" 1 : 64,000, in some of the instances, showed incipient Putrescence after as little as 24 hours' time; after 72 hours the 1 : 8000 Solutions likewise, and in some cases also those of 1 : 4000, were moderately colonized with Bacteria; but *these Bacteria were partly dyed blue*, and hence they were even in these cases very evidently and powerfully impeded in their development and growth.

"Thus, **Pyoktanin,** *in a Solution even as weak as 1: 30,000, acts as an Obstacle to the Development of Putrefactive Bacteria.*

"— —PUTREFACTIVE BACTERIA being, as aforesaid, *the most resistant against Antiseptic Agents* generally, it stood to reason that PATHOGENIC —particularly PYOGENIC—BACTERIA *would be still less resistant* to **Pyoktanin.**

"*This inference was confirmed* by Direct Tests on PYOCOCCI (STAPHYLOCOCCUS PYOGENES AUREUS, etc).—Agar Cultures thereof, inundated with a 1 : 64,000 Solution of **Pyoktanin** and then abandoned in the Thermostat for about 5 hours, *exhibit an intensive coloration and are dead*,—no further growth being discernible after a number of days' additional abandonment in the Thermostat.

"—On the basis of all these experiments, the conclusion is reached that—from a merely BOTANICAL point of view, in the first place—**PYOKTANIN** is an Agent which, *even in rather weak solutions, exercises a very marked restraint* on the development and growth of BACTERIA; whereas, *in somewhat stronger solutions*, say 1 : 2000 to 1 : 1000, *it acts as an Absolute Preventive*, and *surely destroys* whatever BACTERIA are already present.

"— — —Besides **Pyoktanin,** *a number of more or less* ALLIED COLORIFIC SUBSTANCES *were tested as above*,—including Fuchsin, Methylene Blue, Rhodamine, Vesuvine, and many others. *But they did not prove on a par with the former class in any respect.* Those substances tested, which were found possessed of Antiseptic power, had their eligibility nullified by other considerations, yet to be mentioned.

"*The best Agents* discovered in these experiments, *besides* the **Blue Pyoktanin,** were some Compounds pertaining to the AURAMINE-

group,—*the most eligible* of which I shall, for distinction from the BLUE variety of **Pyoktanin** hitherto described, denote as **Yellow Pyoktanin.**—*This latter*, in Solutions of 1 : 8000 to 1 : 1000, in the Thermostat, warded off the Bacteria for 4 days.

"In connection with the Putrefaction-experiments recorded, I must here add, that *Fresh, Filtered Urine*, with 1 : 1000 to 1 : 32,000 of **Pyoktanin,** abandoned in the Thermostat at 25° C for 6 days, exhibited *No Bacteria whatever.*

"— —It appeared important, also, to answer the question whether **Pyoktanin** exercises any influence on the ENZYMES (so-called 'UNFORMED,' or 'UNORGANIZED,' or 'SOLUBLE,' or 'CHEMICAL' FERMENTS), which are, as is well known, evolved by BACTERIA in particularly large measure. For this purpose, the most convenient of these ENZYMES, the DIASTATIC FERMENT OF MALT, (which is known to be produced or emitted also by BACTERIA) was subjected to tests in this direction. Of a Strong Aqueous Infusion of Malt, various portions, of 120 cubic centimetres each, were impregnated with **Pyoktanin,** so that the proportions of the latter to the Water contained in the Infusion were of 1 : 1000, 1 : 2000, 1 : 4000, 1 : 8000, 1 : 16,000, 1 : 32,000, respectively; and one other portion was left without any Dye. Then a little Dry Wheat Starch was added to each of the portions; whereupon they were all consigned to the Thermostat at 25° C.

"*After 24 hours* the following results were found:—The Undyed portion showed the Starch Granules, as expected, in a very far advanced stage of Corrosion; there were a great many Bacteria.—The 1 : 32,000 and 1 : 16,000 portions did not show any perceptible diminution of the Diastatic action; while the 1 : 8000 and 1 : 4000 portions showed a somewhat reduced action. A conspicuous retardation of the Diastatic action was noticed in the 1 : 2000 and 1 : 1000 portions. Here, the Starch Granules were dyed a deep violet; *only a few isolated ones exhibited rudiments of Corrosion*,—consisting of small radial channels. *In neither of these last two portions were there any Bacteria.*

"*After another 24 hours*, all the portions—*except those of 1 : 2000 and 1 : 1000*—exhibited corresponding Increase of Corrosion; while the two portions named *still remained free from Bacteria.*

"—Herefrom, the notable conclusion is drawn, that **PYOKTANIN** *is capable, also, even in comparatively Weak Solutions, of impeding in quite a marked degree a* PURELY ENZYMATIC ACTION. In sufficiently *Stronger Solutions*, it assuredly must exercise a *destructive effect* on the ENZYMES.

"— — —Of the *great number of the* ALLIED SUBSTANCES *tested*, besides the ones mentioned, there were such as exerted quite a satisfactory ANTI-BACTERIAL ACTION, but from accessory reasons were NOT *found eligible for the purpose had in view:* for instance,—on account of Difficult Aqueous Solubility; Gradual Clouding of Solutions; Spontaneous Decomposition; and other such phenomena.

2. Animal Experiments.

"My original object in these investigations having been a purely *Ophthalmological* one, my first Animal Experiment herein was a test of the effect of **Pyoktanin** on the EYE OF THE RABBIT. As a matter of course, *Albinotic* (Albinistic) animals are preferable herefor.

"On INSTILLATION of deeply colored SOLUTIONS OF **Pyoktanin** —from 1 : 1000 upwards—into the Eye, the Conjunctiva and the Sclera are dyed very intensively, and the Iris quite distinctly so. On the other hand, *the Medicament passes an Intact Cornea without in any wise visibly affecting it;* but if the Epithelium has been previously punctured with a lancet to a slight extent, the Cornea takes a very intensive coloration. *On the succeeding day, the coloration is gone.*

"If DRY **Pyoktanin** be strewn into the Conjunctival Sac, the whole is dyed very deeply, and occasionally the substance is precipitated on the Conjunctiva, and even on the Cornea, with metallic lustre. In the succeeding days, *the Epithelium scales off* in large laminæ, which, under the microscope, exhibit a surprisingly intensive *fatty degeneration*, presenting a view almost like that obtained in 'Phosphorus-kidney'; withal, these Laminæ and the entire Sac are *completely free from Bacteria.*—On other Mucous membranes, the same Colorific phenomena are witnessed.

"*A peculiar effect of* **Pyoktanin** *on the* HUMAN EYE, in many instances, *is a powerful Dilatation of the Pupil, without any Paralyzation of the Accommodation.*

"—SUBCUTANEOUSLY, the Rabbit and the Guinea-pig *bear very large doses*,—these being, in the case of the Rabbit, of 20 cubic centimetres, and more, of a 1 : 1000 Solution,—*without the Subjects' taking any harm.*

"The case is altered, however, when INJECTIONS are made into the PERITONEAL CAVITY. Although, even here, relatively large doses —say 10 cub. centim.—are borne without morbific effect; still, *very large doses*, thus applied, *will kill the animal.* On dissection, the entire contents of the Abdomen—Intestines, Liver, Kidneys—are found to be dyed an intensive blue. *The Blood, however, retains its normal color;* and microscopic examination will show, particularly, that the Blood-vessels, contained within the quite intensively blue-dyed Abdominal organs, have remained entirely normal.

"A remarkably beautiful illustration of this peculiar behavior is offered by the Kidney. The sinuous Cortical Capillaries are found dyed intensively blue in such a degree as could hardly be obtained by the most carefully executed Urethral Injection; while between those Capillaries the Malpighian bodies are seen in their perfectly normal red color, with the red Blood-corpuscles contained in them unchanged.

"Although, in the living Human Eye, proof can, in certain conditions, be had that **Pyoktanin** may diffuse itself into the Blood-vessels, *it evidently repasses from them very rapidly, into the tissues, without having wrought any change in the Blood.* Death, in cases like those cited further *above*, probably results from the Coloration, and thereby the Paralyzation, of important Nerve-centres. In such cases, on dissection, *no trace is found of Serous Exudation,—not to speak at all of Inflammation;*—the Abdominal Cavity is even remarkably dry!

"Rabbits *ingest* **Pyoktanin,** skilfully administered in their food, in great quantities, by grammes, *without experiencing any disturbance.* On dissection of such an animal on the succeeding day, the Intestine

is found moderately blued; while, during its lifetime, when fed as stated, the Fæces are intensively blue.

"*The Lungs, also,* of Rabbits may be injected with **Pyoktanin,** in rather considerable quantity, without any disturbing effect becoming apparent.

"— — *It must be noted, however, that the preceding statements (as to Relative Innocuousness)* APPLY ONLY TO **Pyoktanin.** Most of the Colorific Substances allied to it, which possess similar high Antiseptic virtues, are CONTAMINATED WITH ARSENIC AND OTHER TOXIC SUBSTANCES. Such *Contaminated Substances are liable to produce grave Toxic symptoms, and Death, in the Animals experimented-on.*

3. Therapeutic Experiments, and Experiences had so far.

"It was my most natural course to make my Therapeutic attempts with **Pyoktanin** first on the Eye.—By *inoculating* STAPHYLOCOCCUS PYOGENES AUREUS, I produced a grave HYPOPYON-KERATITIS in a Rabbit. *By sprinkling with a Solution of* **Pyoktanin,**—the entire extent of the Ulceration not only, but also the flocculent Pus-accumulation in the Anterior Chamber, were dyed an intensive violet. *Herewith, the entire Pathologic process was cut-short.*

"*Still more salient results* were obtained by me in my CLINIQUE, in the treatment of CORNEAL ULCERATIONS.

"A Corneal Ulceration in a scrofulous child, *treated for over a month with the greatest care by the usual Antiseptics, without material success,* WAS HEALED FROM ONE DAY TO THE NEXT BY THE INSTILLATION OF A FEW DROPS OF A **Pyoktanin** SOLUTION. A recent HYPOPYON-KERATITIS was *also healed from One Day to the Next,* upon proper Sterilization of the Ulcer by a **Pyoktanin** *Pencil; the same result* was likewise obtained in an ill-looking MARGINAL ULCERATION.

"—Even now, my experiences in the direction here indicated are sufficiently numerous to enable me to characterize **Pyoktanin** as a *Remedy in Corneal Ulcers of every kind; excelling, in every respect, all those*

previously employed; and which will quite certainly and very soon *replace, to great advantage, even the Galvano-caustic treatment of Purulent Corneal Ulcerations.*

"—Also in a number of OTHER EXTERNAL OPHTHALMIC AILMENTS, —as: Blepharitis, Conjunctivitis, Phlyctænæ, Eczemas of the Lid,— *I have witnessed favorable results from both* THE BLUE AND THE YELLOW **Pyoktanin,** *such as the other, hitherto usual Medicaments never yielded.*

"—But, however astounding this may appear at first sight,—*it is not alone* those Ordinary, External Eye-diseases and the Corneal Ulcers that are susceptible to the **Pyoktanin** treatment. I have witnessed further startling results, to wit:

"1st.—In KERATITIS PARENCHYMATOSA,—the actual cure of which is known to last ordinarily for months,—I saw, *within a very brief time,* the delicate Ciliary Rubedinosity vanish, and the Slender Vascular Loops at the margin of the Cornea becoming re-absorbed. Under lateral illumination, an ordinary magnifying-glass would show very plainly the **Pyoktanin** *infiltrating these very Vessels immediately after the Instillation.*

"*The films in the Corneal tissue were rapidly re-absorbed; the Eye resumed its normal clearness.*

"2nd.—In IRITIS SEROSA, *of very grave forms,* with intensive and persistent Injection of the Sclera and diffused Turbidities of the Vitreous Humor. *Within one to two weeks, the Injection disappeared;* the Eye became quite free from irritation; *the Vitreous Humor became clear;* and the Visual power was improved remarkably within a very few days.

"3rd.—Even in a few cases of CHOROIDITIS DISSEMINATA *of long standing,* I was made to witness *such amazing improvements in Visual power in the course of a few days,*—and which astounded my Patients still far more than myself (who—I can confidently assert—have always viewed the matter as skeptically as possible),—as to force me to the conclusion that the **Pyoktanin,** *infiltrating the Chorioidea, had there met Pathogenic Bacteria and arrested their growth.*—It should be remarked that *the improvement described was permanent.*

"Strange as the foregoing may seem,—its explanation need not be far sought. The MICRO-ORGANISMS which must be assumed as the producers of CHOROIDITIS DISSEMINATA are evidently *not so strongly pathogenic* as the PYOID BACTERIA. The latter, when once in the interior of the Eye, destroy it within a few days; while the Eye fights the former with success sometimes for decades of years,—yea, sometimes finally overcomes them, as proven by the so-called 'Tigrine Fundi' found by ALBRECHT VON GRAEFE, in which the Visual power had remained unimpaired.

"However, *there can be no doubt on the Permeability of the Sclera by* **Pyoktanin,** after the physiologic experiments made on the Cornea. If a drop of 'BLUE PYOKTANIN' Solution be instilled into the Conjunctival Sac of any subject with a very light-colored Iris, the latter at once assumes a deep violet hue. And certainly it cannot be assumed that the Medicament would encounter more difficulty in permeating the Sclera to the Chorioidea, than it does in permeating the Cornea to the Iris.

"4th.—Even in a case of GRAVE SYMPATHETIC OPHTHALMIA, I have applied this Medicament with such success that—highly skeptic as I was in this particular case—I can no longer entertain any doubt on the correctness of what I am about to state.—After *Enucleation of an injured Eye* in a 7-year-old boy, a Sympathetic affection of the remaining Eye had still formed,—and that of the gravest character. Under symptoms of Brain-compression, an intensive NEURITIS first developed; then, DIFFUSED OPACITIES appeared in the Vitreous Humor, which in a few days reduced the Visual power to mere Quantitative perception of light; at last, IRIDOCYCLITIS, with a daily increasing MYOSIS, supervened. *Atropine remained, as usual in such cases, without effect.* For one month, the child was treated with strong *Mercurial Inunctions* and kept in a *darkened room, without the least effect;*—on the contrary: the Pupil grew more and more constricted; EXUDATIONS appeared in the Pupillary region,—finally, by confluence, forming a MEMBRANE which TOTALLY CLOSED the reduced Pupillary circle. It became almost impossible for the patient to notice movements of the hand executed immediately in front of the eye. Considering the Eye

lost for sight, I thought myself justified in any attempt to still save its structure in some degree; hence, I instilled a 1:1000 Solution of **Pyoktanin.**—*From that moment, the Inflammation was arrested;* the Eye became free from Irritation; since about three months *the Visual power is constantly on the increase*, and is now quite tolerable,—large print being recognizable. The Membrane that covered the Pupil has become transparent in the central part, and throughout its extent permits the Fundus to be noticed by a red translucence when illuminated by the Speculum.

"Whoever has not personally observed the case, may be skeptical; as for me, I am convinced that, *without the* **Pyoktanin,** *which prevented the further development of the Pathogenic Micro-organisms in the Iris, the Eye would certainly have been lost:* the favorable result was too surprising, too sudden, and too enduring, to allow of my regarding it as accidental.

"—In connection with the cases recited, I ought yet to state that, in Animal experiments, I have *injected* **Pyoktanin** *into the Vitreous Humor* without producing any harm. PURULENT PANOPHTHALMITIS, created by Inoculation, *was visibly arrested* by that Medicament; although—of course—the Eye could not escape being phthisically ruined.

"——Incidentally, I was also afforded opportunity, soon after beginning my therapeutic experiments, to treat SURGICAL CASES with **Pyoktanin.** The very first case that offered was of a nature to demonstrate that *the employment of this Medicament is adapted for a vastly larger and more grateful domain* than merely the restricted field of OPHTHALMOLOGY.

"One of my friends, in consequence of an accidental infection on the great toe of his right foot, had contracted a PURULENT PARONYCHIA. The attendant physician had already *cut out a portion of the Nail*, but without material success; whereupon he had felt constrained to announce the necessity of a more comprehensive operation under Chloroform narcosis,—to wit: *Total Extirpation* of the Nail. The patient, fearing the operation, called for my friendly advice. I found an evidently quite deep-reaching Purulent process under the Nail of the great toe, a high Tumescence of the entire foot up to the ankle, Painfulness

of the limb, and Inability to walk. I touched-up the purulent Fundus with a **Pyoktanin** pencil, and *found a remarkable improvement already on the succeeding morning*,—an improvement designated by the patient as a lightning-like one. *The Swelling had considerably decreased; the Purulence had almost disappeared.* Only at one spot,—where the partial Excision had been performed, and which, from over-caution, I had left untouched, a little Pus still issued from the deep seat. Emboldened by success, *I once more applied the* **Pyoktanin** *pencil*,—this time introducing it to the full depth of the Purulent focus, and thus wholly sterilizing the latter. *Herewith, the Cure was completed:* the toe had become *painless* even to vigorous pressure, and the Tumor in the foot was entirely gone.

"—I now treated *with continued success* a number of SURGICAL CASES incidentally coming to my hands: such as PANARITIA,—of which I certainly inhibited one at the beginning,—BURNS and SCALDS, and the like.

"*These cases have given me unequivocal proof that* **Pyoktanin,** *provided it be applied to all the parts to which a Purulent process extends, will effect Sterilization of Purulent Wounds and Ulcers, and will Inhibit further Generation of Pus.*

"The most striking result, so far, was obtained by me in the following case:—A man of 70 years, with his entire left leg covered by PURULENT VARICOSE ULCERS, which refused to heal, suffered great pain, and was disabled from walking, in consequence. The largest of these Ulcers was of twice the size of a silver dollar. *I carefully sterilized them all with* **Pyoktanin,** *and thereby got them on the road to a complete Cure within a few days.* As early as on the third day, the patient was again able to walk, and felt wholly free from pain, and generally well. The leg lost its tumescence; the Ulcers for a time continued emitting Serous fluid, *but no Pus*, and soon commenced to cicatrize.

"— — —*After these practical results there can not well be any doubt that* **Pyoktanin** *is excellently adapted for both* DISINFECTION *and* ANTISEPSIS *in* SURGERY *and in* OBSTETRICO-GYNECOLOGICAL PRACTICE.

"The SURGICAL ANTISEPTIC METHODS by means of **Pyoktanin,** I conceive to be carried out as follows:—The *Instruments* are to be

simply well cleaned; or, if Extra Caution be desired, to be steeped, for some time preceding the Operation, in a weak Solution of **Pyoktanin,** —say about 1 : 10,000 or 1 : 20,000. *After the Operation*, the *Wound* is to be washed with a somewhat stronger Solution of the same,—say 1 : 5000 to 1 : 2000. The needful *Stitching* is to be done with Silk impregnated with a 1 : 1000 Solution of the same. Finally, the *Dressing* of the Wound would consist of Antiseptic Cotton and Antiseptic Gauze, also prepared each by steeping in a 1 : 1000 Solution of the same Medicament. *Thus prepared Dressing-materials are not only reliably* ASEPTIC, *but also reliably* ANTISEPTIC, and even DISINFECTANT; *for the slightest* SECRETION *of Fluids within the Territory of the Operation must at once cause an* ABSORPTION *of a sufficiently concentrated solution of the* **Pyoktanin.** Purulent developments in PUNCTURE-CHANNELS ought certainly not to be possible under this Prophylactic **Pyoktanin** treatment.

"—In ALREADY-DEVELOPED PURULENT PROCESSES, the proper METHODS will, of course, have to be found out and modified to suit the special nature of each class of cases. Thus, where Pus is deeply seated, there will be need of INJECTIONS, of the Introduction of Specially Constructed PENCILS or other Forms, of PAINTING with More Concentrated Solutions, etc. SPRINKLING-POWDERS will also prove useful in many cases.

"— —The idea is obviously natural, of trying **Pyoktanin** *also in Diseases induced by non-Pyogenic Bacteria*,—as has already been partly shown in the foregoing in regard to certain Ophthalmic ailments.—In the first place, SYPHILIS and DERMIC DISEASES here suggest themselves. I have, indeed, already made some *preliminary experiments* in these directions, and met with very satisfying success,—especially so in EXTENSIVE CHANCROUS ULCERS. My appliances, however, were as yet very imperfect in these attempts. Within a brief time, more definite and comprehensive results may be expected; and, judging from the preliminary sequents, those future ones ought to be of quite a gratifying character.

"—A slight extrinsic inconvenience from the SURGICAL EMPLOYMENT of **Blue Pyoktanin** might be found by some in the circumstance that *the Operator is liable to dye his fingers blue* in the handling of it. But this trifling disadvantage *is readily removable by washing with* ALCOHOL *or* EAU

DE JAVELLE, or by touching-up with BIN-OXALATE OF POTASSIUM.—Apart herefrom, *the* DYEING EFFECT *is really of immense advantage to the success of the Disinfectant proceeding itself, inasmuch as it enables the Operator to satisfy himself conclusively by mere ocular inspection whether the* STERILIZER *has reached every part that is intended to be reached by it.*

"— —Comparatively great quantities of **PYOKTANIN** *being capable of* INJECTION *into the* ABDOMINAL *and* THORACIC CAVITIES *without any harmful effect* (as above shown),—and great quantities thereof, furthermore, being capable of INGESTION by Animals *without causing any harm;* —the inference follows that *still farther-reaching uses of it may be possible,* —such as, for instance: in PURULENT PLEURISY and PERITONITIS, in TYPHOID and DYSENTERIC INTESTINAL ULCERATIONS, etc.

"— — —*However, for each and every use to be made of a* STERILIZER, *a Careful Selection of the Substance to be employed, as to its* PURITY *and* PERFECT CHEMICAL IDENTITY, *is a matter of Absolute Necessity!*—There are, as mentioned before, a number of SUBSTANCES ALLIED to **Pyoktanin,** *of very similar Chemical Constitutions but totally different Physiologic Actions;* and many of them are *contaminated with* ARSENIC, *possibly also with* PHENOL; and *in this condition* they are liable, —as I have witnessed especially in Eye-operations,—to induce INTENSIVE IRRITATIONS;—while the PURE PREPARATIONS known as '**PYOKTANIN,**' are capable of inducing *But Very Slight Irritation of the Mucous Membranes* when applied to them in HIGHLY CONCENTRATED SOLUTIONS or in UNDILUTED POWDER.

"—For OPHTHALMOLOGY *especially*, I have found, apart from the CERTAIN SPECIFIC FORM of the Medicament designated as '**Blue Pyoktanin,**' also ONE CERTAIN FORM, designated as '**Yellow Pyoktanin,**' *to be well adapted* for the purpose; while *all the other varieties of closely related substances* IN THE SAME CHEMICAL GROUP extant were found, by the Bacteriological tests, to be *imperfect in Antiseptic action.*

"— —THE FORMS in which I have so far employed **PYOKTANIN** are those of: SOLUTIONS, PENCILS, SPRINKLING-POWDERS, and OINTMENTS;—in a few cases also in SIMPLE, UNDILUTED POWDER.

"— — —*MORE SPECIFIC DIRECTIONS for Use and for Dosage of the VARIOUS FORMS of* **Pyoktanin** will appear in a *SECOND PAPER.*"

Indications and Directions for Use

—OF—

PYOKTANIN PREPARATIONS.

1. Pure PYOKTANIN

—(*very conveniently*, in **Divided Powders**;—*see* **No. 6**,—below!)—
is to be *strewn directly on* the surfaces of LARGE PURULENT WOUNDS AND ULCERS, *until a firm Scab has formed;* which must then be abandoned to SPONTANEOUS DESQUAMATION.

2. Pyoktanin DUSTING-POWDER, 2 %,

is to be *sprinkled on* SKIN-ABRASIONS (*Chafes* from riding, etc.), HUMID ECZEMAS, and the like.

It is *likewise indicated* for certain cases in OPHTHALMOLOGY, as, for instance: INTENSIVELY PURULENT CONJUNCTIVITIS.

3. Pyoktanin DUSTING-POWDER, $\frac{1}{10}$ %,

is *more especially indicated* for OPHTHALMOLOGY,—as, for instance, in the MILDER forms of CONJUNCTIVITIS.—*Also*, in LIGHT INFLAMMATIONS of the PITUITARY MEMBRANE.

4. Pyoktanin OINTMENT, 2 %,

—(*if need be, stronger: up to 10%*)—is eligible in CHRONIC MARGINAL BLEPHARITIS; in ECZEMAS; and *in all those cases* where the **Two-per-cent Dusting-powder** is indicated.

5. Pyoktanin PENCILS.

THE LARGE SIZE

is used for MINOR SURGERY, as occurring in Daily Practice; for instance, *for the Sterilization of* FRESH WOUNDS; in SMALL PURULENT WOUNDS AND ULCERS (which must, however, be *not much larger than a Silver Dollar*); in SMALL BURNS AND SCALDS; in PARONYCHIAS; ETC.

—*The Pencil is dipped into Water, and then passed over the Traumatic Surfaces until* A CONTINUOUS COAT OF COLOR *is apparent over their entire extent; thereupon they are abandoned to* SPONTANEOUS DESQUAMATION.

THE SMALL SIZE

is used *principally* for OPHTHALMOLOGIC purposes; as, for instance, the *Sterilization* of PURULENT CORNEAL ULCERS.

6. Pyoktanin SOLUTIONS,

(*conveniently obtainable* from the **TABLETS** or **DIVIDED POWDERS**),

are indicated *most especially* for OPHTHALMOLOGY, in CONJUNCTIVAL AND CORNEAL AFFECTIONS.—*Their Strength* is usually placed at *1: 1000* (1 part of Pyoktanin in 1000 of Water); but, if *needed*, this may be *increased* to 1: 100.

—FOR SURGICAL USE, *the Strength of the* **Solution** *is to be adapted* to the ANTISEPTIC REQUIREMENTS *of each case.*—Generally, Strengths of *from 1: 10,000 to 1: 1000* are used.

—Solutions of *the latter* Strength are already *largely employed* for GENERAL HYGIENIC DISINFECTION (as, for instance, *in Spittoons for Consumptives*) in *Hospital, Asylum*, and *Prison* practice.

N. B.—The **Divided Powders** are *very convenient, also*, for the uses of "**Pure Pyoktanin**" (*see* **No. 1**,—above!).

7. Pyoktanin Surgical Dressing-Materials, $\frac{1}{10}$%,

are *used like the corresponding* OLD-STYLE ANTISEPTIC DRESSING-MATERIALS.

—*It must be remarked*, however, that the **Pyoktanin Gauze** *of the above Strength* is intended ONLY FOR THE BANDAGING of Wounds, etc., but NOT (analogously to *Iodoform Gauze*) FOR THE FILLING (Stuffing) of Traumatic Cavities.

In order to prepare **Gauze for the Antiseptic Stuffing of Cavities**, *it must be impregnated with* **Pure Pyoktanin**.

☞ In general, *the action of the* **BLUE PYOKTANIN** *is much stronger* than that of the **Yellow Pyoktanin**,—which circumstance ought to be borne in mind when prescribing.

—In some *Special cases*, as of **Dermic Diseases**, and others, the YELLOW PYOKTANIN *may also be preferred* on account of the COLORIFIC EFFECT of the other.

PYOKTANIN PREPARATIONS

at present obtainable in the markets.

1. **Pure PYOKTANIN** (*see, also:* No. 6 (b),—*below!*);
2. **Pyoktanin DUSTING-POWDER, 2 %**;
3. **Pyoktanin DUSTING-POWDER, $\frac{1}{10}$ %** (*for Ophthalmology*);
4. **Pyoktanin OINTMENT, 2 %**;
5. **Pure Pyoktanin PENCILS** (*Two Sizes*);
6. (a.) **Pure Pyoktanin TABLETS** (*for Solutions*),—Two Sizes:—
   1 gramme [15 grains] each; *and* 0.1 gramme [$1\frac{1}{2}$ grain] each;
   (b.) **Pure Pyoktanin DIVIDED POWDERS** (*for the Same Purpose* as the TABLETS)—1 gramme [15 grains] each);—
7. **Pyoktanin SURGICAL DRESSING-Materials $\frac{1}{10}$ %**:—
   Gauze, Wadding, Silk.

— All the above are obtainable in Both the kinds of PYOKTANIN selected by its Discoverer, Prof. STILLING, as the most eligible,—being

PYOKTANIN, BLUE;

and

PYOKTANIN, YELLOW.

N. B.—The BLUE PYOKTANIN is the modification recommended *for Surgical and General Disinfection, Medication, and Prophylaxis;* while the YELLOW PYOKTANIN is particularly intended *for Ophthalmology.*—(The "Blue" Pyoktanin is called so because *it dyes* Blue-Violet; although its appearance *in solid substance* is that of a Metallic Green.)

***Other Forms and Strengths** are made to order.*

A SPECIAL PAMPHLET

ON THE NATURE AND

THERAPEUTIC, OPHTHALMOLOGIC, and VETERINARY

USES OF

PHYSOSTIGMINE (ESERINE)

and of "Eserine Pilocarpine"

has recently been published, and will be sent on application,

By E. MERCK, NEW YORK.

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OF

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1890.

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DIGITALIN HYPODERMICS.

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(*a*) POWDER; (*b*) MIXTURE.

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RUBIDIUM-COMPOUNDS and CAESIUM-COMPOUNDS.

—*NEW BROMIDES IN EPILEPSY, etc.*—

The Physiologic action of both **CAESIUM** and **RUBIDIUM HALOGEN-SALTS** on Canine and on Human subjects has been investigated by S. BOTKIN ([82]).

His experiments show that the CHLORIDES of these Metals, injected into the Circulation, *augment the Blood-pressure* (as it appears, chiefly *by Vascular contraction*), while they also retard the Heart-movement somewhat. The effect on the *Heart-action* is but of *subordinate* character, however, with the RUBIDIUM-salts; and it is *more insignificant yet* with CAESIUM-compounds. Generally, the Salts of both these Metals appear to be *closely related to those of the Alkalis* in the character of their PHYSIOLOGIC ACTION.

Besides the CHLORIDES of RUBIDIUM and of CAESIUM, also **Rubidium Bromide** has been closely studied of late.—Prof. LAUFENAUER ([83]) has the merit of having pointed out the remarkable *Relation of the Atomic weight and Electro-positivity of Metals* TO THE ANTI-EPILEPTIC POWER OF THEIR BROMIDES,— this power being generally stronger as the afore-mentioned qualities are higher. According to this law, the BROMIDES of RUBIDIUM (*At. wt. 85*) and of CAESIUM (*At. wt. 133*) ought to exert *STRONGER ANTI-EPILEPTIC ACTIONS* than the BROMIDES of POTASSIUM (*At. wt. 39*) or of SODIUM (*At. wt. 23*),—*which conclusion has been verified* by Prof. LAUFENAUER'S and Dr. KARLOWSKY'S recent Clinical experiments ([84]) with the simple RUBIDIUM BROMIDE.—This salt, however, being *difficult of preparation*, LAUFENAUER recommends *in its stead*, for Medicinal use, *the following*, as being more readily procurable, while *of similar efficacy*:—

Rubidium and Ammonium, Bromide,—[DOUBLE SALT],— $Rb\,Br + 3\,Am\,Br$,— is a white or slightly yellowish, crystalline powder; *quite readily soluble in Water*. Its taste is somewhat cooling at first, and pungently saline afterwards. From the experiences made with it by

---

([82]) Inaugural Dissertation: St. Petersburg; 1888.

([83]) *Therapeutische Monatshefte*, 1889; p. 348.

([84]) *Pesther Medizinisch-Chirurgische Presse*, 1889; No. 27.

LAUFENAUER and KARLOWSKY (as above stated) *in nearly all the Clinical Varieties of* **Epilepsy and Allied Ailments,** it appears that its **Therapeutic action** in general corresponds to that of POTASSIUM BROMIDE. *In fully one-third the number of the Cases treated,* however, the RUBID--AMMONIUM BROMIDE produced *an indisputably greater Sedative effect than any of the allied Bromine-preparations.*

(The cases treated, as above mentioned, embraced 12 of EPILEPTIC PSYCHOSES, 5 of GENUINE EPILEPSY, 2 of HYSTERIA, 1 of CEREBRAL SYPHILIS, and 1 of TABETIC PARALYSIS.)

—This Medicament was tried also as a **Simple Sedative and Hypnotic** in other cases, and *4–5 hours' Sleep* was thus induced by it.

—The *average* DAILY DOSE (*divided*) of RUBID-AMMONIUM BROMIDE, as used in these experiments, varied from 4–7 grammes [1–1 3/4 drams]. *The effective* SINGLE DOSES *began* at 2 grammes [30 grains]. The DAILY MAXIMA were from 5 to 8 grammes [1 1/4 to 2 drams], or even more.

One Single Dose of 4 to 5 grammes [1–1 1/4 dram], given *in the evening,* was found to produce *Satisfactory Effects as a* SIMPLE SEDATIVE AND HYPNOTIC. The Manner of Exhibition *does not differ materially* from that usual with OTHER BROMIDES.— (It is to be observed, however, that *Exhibition in* POWDERS *or* PILLS *is not considered particularly eligible,* as taxing the Solvent action of the Stomach too highly.)—The following was found to be a good, practical

Formula:

RUBIDIUM-AMMONIUM BROMIDE 6 grammes [1 1/2 drams]; Distilled Water 100 grammes [3 1/4 fl. oz.]; Syrup Lemon 20 grammes [4 fl. dr.].—(Each Tablespoonful contains 0.75 gramme [nearly 12 grains] *of the Salt.*)

Similar results have also been reported by ROTTENBILLER ([85]).

UNTOWARD ACCESSORIES *were never noticed* after RUBID-AMMONIUM BROMIDE.—With Daily Doses of 2 grammes [30 grains], the Salt was *noticeable in the Urine,* by Spectral Analysis, after only 2 days' dosing.

(The quantity found *being small,* however, the inference is natural that *the Metal may be accumulated* or otherwise combined in the Organism; the BROMINE *having been found eliminated* in connection with an Organic compound.)

([85]) *Centralblatt für Nervenheilkunde,* 1889; No. 21.

——[LAUFENAUER having been engaged for some time also in the *Therapeutic investigation of* **Caesium Bromide**, a report hereon may be expected shortly.]

Caesium, Rubidium, and Ammonium, Bromide, [TRIPLE SALT]: — **The Latest Anti-Epileptic.**

The best Preparation of the kind and for the purposes above discussed would seem to be,— according to the consensus of the reports so far received,— *a Combination of the* BROMIDES of RUBIDIUM and of CAESIUM with that of AMMONIUM.—THIS TRIPLE SALT,— (in addition to the *Simple and Double Salts* of CAESIUM and of RUBIDIUM, as *hereinbefore* and *hereinafter* mentioned) — has recently been placed on the market by E. MERCK.

———**The other Caesium-compounds** at present in the Drug--market, besides the above TRIPLE SALT, are:

Caesium and Ammonium, Bromide,— [DOUBLE SALT],— Cs Br + 3 Am Br,— a white, crystalline powder, *readily soluble* in Water; —

Caesium Carbonate, — $Cs_2 C O_3$, — a sand-shaped, white substance, melting at red heat; *very hygroscopic; very readily soluble in Water;* soluble also in Alcohol; —

Caesium Hydroxide,— Cs O H,— a grayish-white mass, melting below red heat; rather *deliquescent;* behaving toward Water or Alcohol as POTASSIUM HYDROXIDE does; —

Caesium Sulphate, — $Cs_2 S O_4$,— anhydrous, colorless prisms, permanent in the atmosphere; *far more readily soluble in Water* than the corresponding POTASSIUM-salt; insoluble in Alcohol.

Cocaine Hydrochlorate, Merck — [*See* "MERCK'S INDEX", p. 38.]. — The **"Intensified Permanganate Test"** for COCAINE HYDROCHLORATE, which is most beautifully borne *by the above-named Brand*, has been previously described in detail ([86]); the **"Maclagan Test"**, which is borne with equal excellence *by the same Brand*, is executed as follows:

([86]) MERCK'S BULLETIN, 1888; p. 8.

0.06 gramme [about 1 grain] of the COCAINE HYDROCHLORATE is dissolved in 60 grammes [about two fluidounces] of PURE WATER; then 2 drops of 10-% AMMONIA-WATER are added, and the Mixture is stirred.—*After a short time,—15 minutes at most,—if the* COCAINE HYDROCHLORATE *be* PURE, *a Crystalline Precipitate must have formed, while the Liquid remains clear.*

—According to POLENSKE ([87]), the **Maclagan Test** *will show the presence of as little as 4 % of* **Amorphous Alkaloids** in the COCAINE HYDROCHLORATE. For, if more than 4 % of AMORPHOUS ALKALOIDS are present, the Mixture, in the above test, *will only be affected with a Milky Cloudiness.*

—The **Serious Importance of the Amorphous Coca-bases** in the matter of COCAINE MEDICATION is apparent from communications by LIEBERMANN and LIEBREICH.

LIEBERMANN ([88]) discovered among the AMORPHOUS ACCESSORY BASES of COCA-LEAVES *an exceedingly toxic substance:* **Is-atropyl-cocaine,** which, according to LIEBREICH, acts as a **Direct Heart-poison.**—The last-named investigator speaks hereof as follows ([89]):

> "*I deem it quite probable that also the* HYDROCHLORATE OF COCAINE, *unless it be very perfectly crystallized, contains the afore-mentioned* HEART-POISON,—even though this be but in traces."

[*See*, hereanent, also G. FALKSON's remarks: "On the Physiologic action of IS-ATROPYL-COCAINE" ([90]).]

——The yield of **Pure Crystallized Alkaloid** from the CRUDE COCAINES of Commerce is considerably smaller than is generally assumed. Moreover, the *Complete Separation* of the AMORPHOUS BASES from the CRYSTALLINE ALKALOID involves a complicated process, which, by the losses of material incident to it, becomes quite costly.—(This explains why an *Absolutely Pure, Entirely Crystalline* COCAINE HYDROCHLORATE must be *higher-priced* than a COCAINE HYDROCHLORATE *contaminated with Amorphous Coca-bases.*)

Adonidin, the GLUCOSIDE from the Rhizome and Roots of *Adonis vernalis*, as described in this journal before ([91]),—and its **Tannate,**—

(87) *Pharmazeutische Rundschau*, 1887; p. 59.

(88) *Berliner Chemische Berichte*, 1888; p. 2344.

(89) *Therapeutische Monatshefte*, 1888; p. 510.

(90) Inaugural Dissertation: Berlin, 1889.

(91) MERCK'S BULLETIN, 1889; p. 72.

[For both: *See* "Merck's Index", p. 10.] — have been employed with success as **Heart Tonics** and **Mild Diuretics** by Thomas Oliveri ([92]), in *Aortic* and *Mitral Insufficiency*. He thus always obtained Palliation of Precordial pains, of Dyspnea, of Heart-palpitations, etc.

According to this author, the *Single Dose* — to avoid the Disagreeable Accessory effects formerly described ([93]) — *should be limited to* 0.06 gramme [$^{9}/_{10}$ grain].—The Pure Glucoside *or* the Tannate of Adonidin are reported by him to be best exhibited — in *Doses* of 0.01–0.06 gramme [$^{1}/_{6}$–$^{9}/_{10}$ grain] — *in connection with* Chloroform-water and Ammonium Carbonate, *4 times daily*.

☞ ***Caution!***—There seems to be reason for suspecting a *numerical error* in Oliveri's published report; for the discrepancy between *these Doses* and those previously published is considerable: the above Maximal limit for Single being *three times as large* as that formerly reported for Daily, and *nine times* as great as that stated for Single in the *MAXIMAL DOSE TABLE* ([94])!

—Adonidin Tannate is a brownish-yellow powder; *poorly soluble* in Water, *easily soluble* in Alcohol, *insoluble* in Ether.

Agaricic (Laricic) Acid,— [*See* "Merck's Index", p. 1.] — as the Active Constituent of the well-known **Antihydrotic** medicament Agaricin, whose virtues it represents *without* sharing its noted drawbacks,— was discussed in this journal of last year ([95]).

According to Hofmeister's report (*partly quoted before as indicated*), the Hypodermic administration of this Acid is not advisable, on account of its *Topically Irritating* effect; while its Internal administration as an Antihydrotic can be resorted-to *without any fears of Untoward Accessories*.

Prof. Kahler's Clinique at Prague University reports repeated cases of *Dosage* with Agaricic Acid to the extent of 0.05 gramme [$^{3}/_{4}$ grain] Single,—and in one case even of 0.1 gramme [$1\,^{1}/_{2}$ grains] *at once*,— in Nocturnal Sweats of Phthisis, *without any more Toxic symptoms* than a slight and very evanescent Nausea. Doses of 0.02 and 0.03 gramme [$^{1}/_{3}$ and $^{1}/_{2}$ grain] *were invariably well borne*.—*Therefore*,— and

(92) *The Lancet*, 1888; XI. 24.

(93) Merck's Bulletin, 1889; p. 73.

(94) Merck's Bulletin, 1889; p. 45.

(95) Merck's Bulletin, 1889; p. 1.

because the ANTIHYDROTIC EFFECT, with this Medicament, *does not usually set-in until after several hours, and then lasts for at least 24 hours,*— an opportunity is afforded, in the REPEATED ADMINISTRATION OF SMALL DOSES, to avoid the disagreeables which might ensue upon the administration of a Solitary Large Dose.

According to KLEMPERER (96), the SINGLE DOSE of AGARICIC ACID is to contain 0.01 gramme [1/6 grain] in a *Pill;* best *to be taken at about 6 o'clock p. m.*—If the effect be insufficient, this Dose may be gradually increased up to 5 Pills.

The usual physical form of PURE AGARICIC ACID is that of a white powder, with silk-like lustre,—consisting of microscopic tabular crystals.

Amylene Hydrate, pure, medicinal, — Kahlbaum, — [*See* "MERCK'S INDEX", p. 17.] — has been fully described in this journal (97); but a comparison recently made between it and **Sulphonal** (Di-ethyl-sulphon-di-methyl-methane) is still of interest.—It is that the *Hypnotic effect* of AMYLENE HYDRATE (*Kahlbaum*) *is secured promptly after a half hour's lapse* and lasts for 7–9 hours; consequently the Patient finds himself rested and refreshed upon awaking next morning. This constitutes *a preference for it over* SULPHONAL, whose effect usually survenes only after several hours, and frequently continues all through the following day in a disagreeable measure.

Anemonin — $C_{15}H_{12}O_6$ (acc. to FEHLING).—In addition to its uses as previously stated in this journal (98), Dr. BOVET (99) recommends it **also in Dysmenorrhea.** Its action, in this case, is exerted principally on the Nerve-cords of the Uterine apparatus.

— [For DOSES, see *previous* Report, as indicated.] —

Apo-atropine is a colorless, crystalline substance, *little soluble* in Water; *readily soluble* in Alcohol, in Chloroform, and in Benzene. Melting-point, 60–62° C [say 142 F].

APO-ATROPINE *is identical* with PESCI'S and with LADENBURG'S **Atropyl-tropeine.**

---

(96) *Berliner Klinische Wochenschrift*, 1889; p. 532.

(97) MERCK'S BULLETIN, 1888; p. 9; — *and* 1889; p. 61.

(98) MERCK'S BULLETIN, 1889; p. 64–65.

(99) *Les Nouveaux Remèdes*, 1889; p. 232.

Benz-anilide (*Phenyl-benz-amide*).—The results obtained by E. KAHN in the INFANT CLINIQUE at STRASSBURG UNIVERSITY with this Drug as an **Antipyretic** were briefly stated before ([100]). The following data are from the same author ([101]):

> "The **Antithermic effect** was witnessed in cases of PNEUMONIA, MENINGITIS, PHTHISIS, BRONCHITIS, etc. It was always accompanied by *a gradually survening Diaphoresis.*—Untoward Accessories (with the exception of a single case, in which a large-spotted Exanthem occurred) *were not witnessed.*"

—CHILDREN'S DOSES are stated at 0.1–0.2 gramme [1 1/2–3 grains] *for 1–3 years;* 0.2–0.4 gramme [3–6 grains] *for 4–8 years;* 0.6 gramme [9 grains] *for older.*—The MAXIMAL DOSE *per day* is placed at 3.2 grammes [48 grains].

—BENZ-ANILIDE is a white, crystalline powder; almost *insoluble* in Water; *soluble* in 58 parts Cold, and in 7 parts Hot Alcohol; little soluble in Ether.

Butyl-chloral Hydrate—[*See* "MERCK'S INDEX", p. 29.]—(often *mis-called* "*Croton-chloral Hydrate*"), whose **Therapeutic uses** *have been previously described* ([102]), is in white, crystalline laminæ, of peculiar odor; *difficultly soluble* in Cold, *more easily* in Hot Water; *very readily* soluble in Alcohol. Melting-point 78° C [172.4 F].—Specific gravity 1.69.

Caffeine Phtalate,—[*See* "MERCK'S INDEX", p. 30.]—previously described in this journal ([103]), has been found *excellently adapted for* **Hypodermic use** on account of its READY AND PERFECT SOLUBILITY *in a Small Quantity of Water* (1 : 5); while CAFFEINE ALKALOID (for instance) has *only* 1/15 of that Solubility.

Chloral-ammonium, whose **Physiologic and Therapeutic action** *has been previously explained* ([104]), is a white, crystalline powder, of taste and odor resembling CHLORAL HYDRATE; *little soluble* in Cold Water, *more readily* so in Alcohol. Melts at about 64° C [147.2 F].

([100]) MERCK'S BULLETIN, 1889; p. 15.

([101]) *Jahrbuch für Kinderheilkunde*, 1888; p. 400.

([102]) MERCK'S BULLETIN, 1889; p. 22.

([103]) MERCK'S BULLETIN, 1888; p. 6 and 7.

([104]) MERCK'S BULLETIN, 1889; p. 2.

—It is reported to be a good **Hypnotic**, like URETHANE, and an **Analgetic**, like CHLORAL HYDRATE.

Cubebic Acid — [*See* "MERCK'S INDEX", p. 4.] — $C_{28} H_{30} O_7$ (acc. to SCHULZE) — is found in the *Officinal Cubebs*, associated with CUBEBENE, an Ethereal Oil; and with CUBEBIN, an indifferent solid.—The ACID is a white, wax-like substance, which soon *turns brown* in the air; and is readily *soluble* in Alcohol and in Ether.

—The THERAPEUTIC VALUE of CUBEBIC ACID is variously estimated. According to BERNATZIK ([105]), the ACID represents the **Antiblennorrhagic** principle of the Cubebs.

MAXIMAL DOSE, according to ANREP and VOROMIKIN ([106]):—1 gramme [15 grains] SINGLE; 5 times that DAILY.

Gold mono-Bromide, (*Aurous Bromide*).—The main purport of GOUBERT's treatise on this Salt as an **Anti-Epileptic** has been stated before ([107]).—On the basis of *10 years' experience* with GOLD MONO-BROMIDE, the same author *lauds it over all the other* BROMINE-PREPARATIONS on account of its *Rapid Action even in Very Small Doses*, and of its *Promoting Long Intermissions between the Attacks;* while NEITHER BROMISM NOR GASTRIC DISTURBANCES, NOR ENFEEBLEMENT OF THE INTELLECTUAL AND SEXUAL FUNCTIONS were observed in its train.

—In **Hemicrania**, Doses of 0.003 gramme [$^1/_{20}$ grain] of GOLD MONO-BROMIDE, *twice a day*, an hour before meals, *acted very favorably* ([108]).

Kefir and **Kumys.**—Both these names (also spelled "KEPHIR" and "KOUMISS", or "KEPHYR" and "KOUMYS") are applied to a *nutritious*, *dietetic*, *refreshing* and *gently stimulating* DRINK prepared by various nomadic tribes, principally of Western and Central Asia, and of the Caucasus region, by a peculiar *Lacto-vinous Fermentation* of MILK.—*Properly*, the name KEFIR applies to the fermented Drink thus obtained from *Cow's milk*, and the name KUMYS to that obtained from *Mare's*

([105]) HUSEMANN and HILGERS's "Pflanzenstoffe", p. 492.

([106]) *Russian Medicinal Agenda*, 1889; p. 215.

([107]) MERCK's BULLETIN, 1889; p. 65.

([108]) *Wiener Medizinische Presse*, 1889; p. 1622.

milk; although, *with us*, the latter name is most frequently used for the former.

The manner of inducing the peculiar fermentation necessary for producing good KEFIR or KUMYS, as practised "at home" by the Tartars, Kirgheez, Circassians, Bashkirs, and other tribes, remained a secret for many years after those Food-Drinks and their various dietetic and curative virtues had become known to the physicians of Russia, and through them to the rest of the civilized world. It was supposed that the fermentation was, or could be, induced by the aid of common Brewers' or Bakers' YEAST; and, indeed, various *Imitations*, thus prepared, of the true KEFIR and KUMYS have long been manufactured on a large scale in Switzerland and other countries, and largely used for the dietetic purposes to which the true KEFIR or KUMYS are alone well adapted.

It was not until Dec. 1, 1884, that ED. KERN, in a lecture to the IMPERIAL SOCIETY OF NATURALISTS at Moscow, demonstrated by inspection that *a peculiar composite organized Ferment*, of which he had brought samples from the Caucasus, is the active agent of the KEFIR fermentation as practised by the aboriginal tribes of that region ([109]).

—The *identical* **"Kefir Fungi"**— [*See* "MERCK'S INDEX", p. 80.] — or so-called "KEFIR SEEDS", which the Nomadic tribes of the Russian Empire use in preparing their original KEFIR, have now been brought into civilized commerce, and are *obtainable through the Drug-trade.*

According to KERN, they consist essentially of a COMMENSALITY OF TWO FUNGI of wholly different characters, to wit: the regular BREWERS' YEAST (*Saccharomyces cerevisiæ* MEYEN), and A NEW BACILLUS, which (from its tendency to emit sporules at both ends) he calls *Dispora caucasica.* Associated with these there appear to be some other cells, principally of *Oïdium lactis;* — of which, however, it has not yet been determined whether they are essential or accidental.

The prime origin of this Composite Ferment, as represented by the KEFIR FUNGI, has not been ascertained. But so much is certain, that both COMMON YEAST and ATMOSPHERIC SPORULES *will not replace it* with equal effect; and that Milk fermented either by Yeast or by mere Atmospheric influences *can never yield* a product endowed with the *Dietetic and Therapeutic virtues* of TRUE KEFIR!

The **Appearance** of *well-conditioned*, dry **Kefir Fungi** is that of dingy light-brown, or yellowish, irregular *aggregations* of hard, roundish or oval *granules*, from about the size of a rye-grain to that of a pea, or

([109]) "Die Neueren Arzneimittel", by Dr. BERNHARD FISCHER; II. Ed., p. 206.

larger. Their *odor* is an agreeable, healthy one, similar to that of fermented Pure *Cream*, or of Good, Fresh *Swiss Cheese*.—A whitish incrustation, sometimes visible in their recesses, is harmless; but a *greenish* color should be considered an indication of *mold*, and therefore probably of *deterioration*.

—The **Preparation of True Kefir** (or so-called "KUMYS") consists of TWO PROCESSES, as follows:

1.—Preliminary Process, of Developing the "Seeds".

The "SEEDS" or "FUNGI" are steeped in Water of 30° C [86 F], and left to stand with the Water for 4 or 5 hours. In this time, good KEFIR FUNGI must *swell* to 2 or 3 times their former volume; and *then* they come up from the bottom, to *swim* at the top.—Now the Water is poured off, and the FUNGI are *washed* by being well shaken with several changes of Distilled Water. This done, they are steeped in *10-fold their weight* of COW'S MILK; which has *previously* been thoroughly *boiled*, and then *cooled* to 20° C [68 F]. This latter steeping-procedure is *repeated in the morning and in the evening of each day* for 5 to 7 days; the *used Milk* being poured off and *thrown away*, and a *new lot of Milk*—treated as above, and of same quantity—being substituted therefor each time; and the "SEEDS" being *well washed* with Pure Water *before each* new steeping. During these steepings, the vessel containing the Milk and "SEEDS" is to *receive a shaking once every hour* during the day-time; so as to cause the "SEEDS", which at first swam at the top, *to sink* to the bottom. Toward the end of the proper steeping-period of 5 to 7 days (as above stated), *they will rise again*,—having still further increased their volume,—and the mixture will have assumed *a pure odor of Sour Milk*. This well-developed odor, and the persistent rising of the FUNGI in the liquid, indicate *the completion of this preliminary process;* and they are NOW DEVELOPED, *ready for use!*

2.—Main Process, of Fermenting the Milk.

For preparing the KEFIR DRINK, *one more steeping* of the thus DEVELOPED FUNGI in 10-fold their *Dry* Weight of *boiled* COW'S MILK at 20° C [68 F] during 12 to 24 hours, with occasional *shaking*, takes place. *At the expiration of the time* allotted for this steeping, the Milk thus "impregnated" is *strained-off* from the "SEEDS" by means of a Gauze strainer; *whereupon the* "SEEDS" *may immediately be used for impregnating a fresh lot* of Milk, in the same way.

The IMPREGNATED MILK that has been thus strained off the Fungi, *is divided into portions* of $2\frac{1}{2}$ fluidounces [$4\frac{1}{2}$ cubic inches] each. Each of these portions is placed *in a Quart-bottle* (Champagne-bottle), *which is then*

at once nearly filled up with *boiled* MILK of 20° C [68 F], and *well stoppered* (the Porcelain-and-Rubber stopper being best adapted).—The bottles so filled are kept *at a temperature not exceeding 15° C [59 F]*,—being occasionally shaken,—*for one, two, or three days;* at the ends of which periods they will contain, respectively, *Weak, Medium, or Strong* KEFIR (also designated as "One-day", "Two-day", and "Three-day" KEFIR).

— Cautionary Remarks on the above.—

THE HIGHEST ATTAINABLE DEGREE OF CLEANLINESS must attend all these operations. Not only must the *Bottles* be scrupulously clean, but *all Implements and Vessels whatever*, which in any wise come into contact with the FUNGI or with the MILK or WATER used in the described processes, must be equally so; and those Utensils which have come into contact with the FUNGI or the MILK *must be sterilized immediately after such use* by BOILING WATER, or, preferably, by SUPERHEATED STEAM.

—The FUNGI, when used for *impregnating repeated lots of Milk in continuous succession*, in the "Main Process", as above indicated, should NOT be thus employed for more than *three days* WITHOUT being washed in Water and thereafter in a half-per-cent *Soda-solution*, at the termination of one of the steepings.—*Thus treated*, they ought to retain their Fermentative powers unimpaired, *while growing in weight*, for a practically unlimited time.

—The **Dietetic virtues of Kefir** (or KUMYS) are based principally on the *More Easily Digestible Forms and Combinations* into which the Natural Constituents of the Milk are brought through the *Chemically Alterative action of the Ferment*, applied as above.—In KEFIR, the CASEIN of the Milk is coagulated into a *fine, flocculent Curd*, similar to that from WOMAN'S MILK, and therefore utterly dissimilar to the heavy, tenacious and difficultly digestible Curd of *plain* Cow's milk. The CASEIN is at the same time *dissociated from its chemical combination with Calcium Phosphate*, in which it naturally exists in the raw Milk; whereby it is rendered *more easily soluble* in the Gastro-intestinal fluids. A part of the LACTOSE of the Milk is found transformed into *Lactic Acid;* and another, *larger* part (*if the temperature* has been kept down properly during the process, as above directed) into *Alcohol* and "*Carbonic-acid*" *Gas.* The LACTIC ACID thus formed, in probable conjunction with the peculiar BACILLUS of KEFIR FUNGUS (*Dispora caucasica*), above mentioned, converts a portion of the CASEIN into *Acid-albumin, Hemi-albumose*, and *Peptone;* thus PRE-DIGESTING IT STILL MORE.—The

BUTTER-FAT present is also finely subdivided, and *occluded* between the particles of the flocculent CURD, thus rendering the latter *perfectly emulsifiable by simple shaking*. The richness of the KEFIR in Alcohol and Carbon Di-oxide adds still more to *its ready assimilability*.

The proportion of LACTOSE *transformed*, as just stated, *into Lactic Acid and Alcohol*, grows with the *length of time* the fermenting or pre-digestive process IN THE BOTTLES, as above described, is allowed to continue. That is why "One-day" KEFIR is described as *Weak* KEFIR, and the "Three-day" article as *Strong*.— Still, it must be remembered that the intensity of action of the Ferment on the Milk depends on many *Meteorological and other circumstances* which are partly removed from human control; so that, at one time or place, it may, f. i., be necessary to leave the bottled KEFIR-MILK to ferment *for five days* in order to obtain a product such as three days' fermentation would yield at another time or place.—*Frequent Shaking*, however, is under all circumstances an important factor toward the obtainment of a good product!

—Also, the **Choice of Weak or of Strong Kefir** FOR A CERTAIN PATIENT'S USE is almost altogether *a matter of individual condition*, and even of Idiosyncrasy. So are the DOSE, the FREQUENCY of Imbibition, and the DURATION of Treatment. These matters *ought to be determined by the Physician* on his observation in each case.

——**Kefir is indicated** in all conditions related to DEFECTIVE NUTRITION; so, f. i., in *Anemia*, *Emaciation*, and *Asthenia*. It is likewise *useful in Phthisis as a Roborant*, though not as a direct Curative.— In all cases, a favorable effect is demonstrated most pointedly by *a prompt increase of the Patient's weight*.

The TREATMENT begins with DAILY DOSES of say 10 fluidounces, gradually rising to 3 pints — taking *a glassful at a time*,— *not with, but between, Meals*. The "glassful" *should not be taken at one draught*, but slowly by moderate sips, and *should be followed by a little exercise*.— It is remarkable that WEAK KEFIR *relaxes* the bowels; while STRONG KEFIR *constipates*.

— The DURATION of the KEFIR-treatment should depend on *how long the Patient takes it well and bears it well*. Whenever REPUGNANCE sets-in, the Dosing should be suspended!

Physical Properties of Good Kefir Drink.

The KEFIR DRINK, properly prepared, as above, *from Healthy Milk and Well-conditioned Fungi*, should exhibit the following external signs:

It is a strongly effervescent, foamy liquid, of creamy consistency, of agreeably acidulous taste, and of an odor similar to that of newly-soured Cream, or of Buttermilk. All the coagulated CASEIN must be present *in exceedingly fine subdivision*, presenting the appearance of a perfectly homogeneous *Emulsion;* and it should be entirely impalpable on the tongue. If a long period of *repose* has permitted the formation of *two strata* in the bottle, these must re-unite into the Emulsive form *by mere gentle inclination of the bottle*, several times repeated.

The proper degree of "RIPENESS" for Imbibition is made evident, while the bottle is yet closed, *by a persistency, for several minutes*, of the Foam formed by Shaking.

The STRONG KEFIR (of *several* days' age) is distinguished from the WEAK, or *young*, KEFIR by a *more intensive acidity* of taste, a *thinner, more mobile consistency*, and a *markedly stronger effervescence* when liberated (or foaming disposition when shaken in the closed bottle).

Phenyl-acetic (*Alpha*-TOLUIC) **Acid**

$$-C_6H_5.CH_2.CO_2H-$$

and

***Beta*-Phenyl-propionic (Hydro-cinnamic;** *Homo*-TOLUIC; *Benzyl-acetic*) **Acid**

$$-C_6H_5.CH_2.CH_2.CO_2H-$$

—[HYDRO-CINNAMIC ACID,—*see* "MERCK'S INDEX", p. 5.]—

have *both* been made the subjects of comparative **Bacteriological** experiments by KLEIN and LINGARD ([110]), in which it was found that *both* ACIDS, in HALF-PER-CENT SOLUTIONS, have the power of *Completely Destroying the Infectious Capacity* of **Tubercular Virus.**

—*In addition* to the results of the **Therapeutic** investigations by Dr. WILLIAMS (made at BROMPTON HOSPITAL), as reported in this journal before ([111]), in regard to HYDRO-CINNAMIC ACID alone, the following statements are derived from the same series of investigations on **Phthisis** with regard to *both* these ACIDS:

([110]) *The Pharmaceutical Journal and Transactions*, Vol. XVI; p. 429.

([111]) MERCK'S BULLETIN, 1889; p. 29.

"Both PHENYL-ACETIC and *Beta*-PHENYL-PROPIONIC ACID, given *internally*, were found to *benefit the Appetite and the Digestion* of **Phthisical** patients; and were *very well borne even in large Doses.*

"In **Cavernous formation**, the *Beta*-PHENYL-PROPIONIC ACID appeared most eligible, and in **Tubercular formation** the PHENYL-ACETIC."

—It is further stated that the DOSES directed in the previous report (10 drops of a CONCENTRATED ALCOHOLIC SOLUTION [1 : 6] diluted with 30 cub. cm. [1 oz.] of Water,—3 times a day),—for *either* ACID,—may be *gradually raised to Double* in the course of treatment.

——PHENYL-ACETIC ACID was furthermore used by ALIVIA ([112]) in **Typhus**, *in Large Doses*, to wit: 2–6 grammes [30–90 grains] *per day*, INTERNALLY. He thereby obtained favorable results, *in Lowering the Temperature and Augmenting the Abnormally Reduced Blood-pressure*; while the Urinary Secretion exhibited an *Increased Proportion* of UREA and of PHOSPHORIC ACID.

[***N. B.***—These TYPHUS doses of ALIVIA'S are so *enormously larger* (16 to 18 times) than WILLIAMS'S doses in PHTHISIS as above, that there seems to be *room for doubt whether they are correctly stated.*]

—PHENYL-ACETIC ACID comes in shining, white laminæ; *soluble* in Hot Water, in Alcohol, and in Ether; melting at 76.5° C [169.7 F]; boiling at 262° C [503.6 F].

—*Beta*-PHENYL-PROPIONIC ACID (besides its solubilities as formerly stated) is also *readily soluble* in Hot Water and in Ether; melts at 48–49° C [say 119 F]; boils at 280° C [536 F].

SELECTIONS.

THE PREVENTION OF THE TOXIC EFFECT OF COCAINE. ([113])

By ISIDOR GLUCK, M.D.,

OCULIST AND AURIST TO THE ACADEMY OF THE SACRED HEART AND BROWNELL HALL, OMAHA, NEB.

COCAINE, our most useful local anæsthetic, has one great disadvantage which any one who has much employed the drug must have experienced, viz., *its toxic effect.* Sooner or later, in the experience of every one, this is manifested, and generally when least expected. In my own practice, using the drug frequently in diseases of the eye, ear, nose, and throat, and seeing at times most alarming effects, I came to

([112]) *Gazetta degli Ospitali*, 1888; No. 86.

([113]) *Medical Record*, 1890; p. 707.

have a certain dread of it. Though cases are reported I have never seen it produce the toxic effect as a result of its use upon the eye. Its failure to do so is probably because absorption through the cornea is much slower than elsewhere, and I have always made it a rule to guard the tear-ducts — the channels leading to the nose and throat. In operations on the cornea I have always made it a rule to use the drug in the powdered form ; the moisture of the eye is thus absorbed ; and as the process of solution is slow, the anæsthesia is correspondingly prolonged. It is in the treatment of the nose and throat, and when used hypodermically, that Cocaine produces most alarming symptoms. Though used in strengths varying from four per cent to twenty per cent, sometimes the weakest solutions will produce the toxic effect in one susceptible. There is a great difference in individuals in this respect, some being very susceptible, others scarcely so at all. Patients with neurotic tendencies are generally more susceptible than others.

The first symptoms marking the toxic effect of Cocaine are restlessness and pallor of the face. In some cases perspiration appears about the mouth and on the forehead, and patients invariably express themselves as feeling "very peculiarly". In such cases, treated daily, there is restlessness at night.

Miss H. M——, blonde, aged twenty-four, suffering from hay fever. Applied a four-per-cent solution of Cocaine to left nostril ; had hardly removed the cotton-carrier, when she sprang from the chair exclaiming : "Doctor, I cannot breathe ; I am choking". In a few minutes all effects had disappeared. Next day I applied a one-per-cent solution of Sulphate of Atropine ; in a few minutes patient complained of a feeling of lassitude, pupils normal, no flushing of the face or dryness of the throat. The same patient, fifteen minutes after a dose of fifteen grains Antipyrine, manifested the following symptoms : Face puffed, pupils dilated, eyelids swollen, conjunctiva injected, rash all over the body, pulse scarcely perceptible at the wrist, breathing hard and rapid. I have had other cases susceptible to Cocaine and Atropine, and others, like the one just mentioned, susceptible to the influences of Cocaine, Atropine, and Antipyrine. All have been blondes with neurotic tendencies, and generally adults of middle life. Children seem to bear Cocaine well, as they do Atropine.

Aside from the alarm and inconvenience of the toxic effect of Cocaine, the drug has another peculiarity in solution. *It does not remain stable.* After twenty-four hours it loses its anæsthetic properties to a greater or less degree, and in a few days becomes useless. The strength of the solution varying thus, it has to be freshly made every day.

For the reasons above mentioned I was led into a series of experiments with a view to rid Cocaine of these defects, the result being the discovery that COCAINE IN COMBINATION WITH PHENOL *not only removes the objectionable features, but increases its usefulness.* The formula which I have adopted is the following :

Phenol ..... **2 drops.**
Aqua destillata ..... **1 dram.**
Shake until solution is perfect, then add
Cocaine Hydrochlorate ..... **10 grains.**

I have been using the above formula for over a year, and since using it have never had to deal with the toxic effect of the drug. In fact I have been able to use it in any quantity, and in any part of the nose or throat, without the least fear of harmful consequences. Phenol, in the same manner as Cocaine, by suspending the functions of the sensory nerves, is itself a local anæsthetic of no mean power. The combined action intensifies the anæsthetic. Phenol also coagulates Albumin and combines with Fats, forming a very superficial eschar, which prevents the absorption of Cocaine and hence its toxic effect. Phenol is also destructive of Bacteria, Fungi, etc., and prevents decomposition in the solution. Its effect is also to ward off the congestive and other reactive effects experienced after the use of Cocaine, which, next to Chloroform and Opium, is nature's greatest boon to mankind.

Résumé: The Advantages of Phenol-and-Cocaine.—*1. Prevents toxic effects. 2. Increases the anæsthetic effect. 3. Prevents congestive reaction. 4. Prevents decomposition of the solution. 5. Renders solution aseptic.*

GATHERED FORMULAS.

INDEPENDENT of the TEXT-MATTER.

14.—DIGITALIN HYPODERMICS.—Féréol [114].

Diluted Alcohol	10 grammes [3 fl. drams].
Distilled Water	10 grammes [160 minims].
Glycerin	5 grammes [1 fl. dram].
DIGITOXIN (= "Digitaline crystallisée" *of the French Codex!*)	0.025 gramme [3/8 grain].

(Each *Cubic centimetre* of the Solution contains *0.001 gramme* [or each *Minim* contains nearly 1/1000 *grain*] of Digitoxin.)—*Inject 2–4 drops!*—(*Beneficial effect to be expected after 48 hours.*)

15 & 16.—THEOBROMINE AND SODA, SALICYLATE, as a Diuretic

in NEPHRITIS, ANASARCA, HEART-TROUBLES, etc.

M. Chouppe [115].

—Powder.—

Theobromine and Soda, Salicylate .....6 grammes [1 1/2 drams].

Divide into 6 Wafers.—*One Wafer every 3 hours.*

—Mixture.—

Theobromine and Soda, Salicylate	5–6 grammes [1 1/4–1 1/2 drams].
Syrup Orange-peel	25 grammes [5 fl. drams].
Distilled Water	60 grammes [2 fl. oz.].

One Tablespoonful every 2–3 hours.

(114) *Wiener Medizinische Wochenschrift*, 1889; p. 1724.

(115) *Les Nouveaux Remèdes*, 1890; p. 186.

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PHENYL-HYDRAZINE IN URINE TESTING:

THE BEST REAGENT FOR SUGAR.

More than a dozen methods are known, for the **Detection of Sugar in Urine**; all of which are put to more or less use in the Physiological laboratories, but *not one of which is entirely unobjectionable.* Some of them suffer from the drawback that their degree of sensitiveness is not capable of very precise determination; others are too cumbersome; and still others are not sufficiently reliable in the uniformity of their indications. Of the class known as "REDUCTION-TESTS," the most sensitive and most reliable one, according to G. ROSENFELD's showing in the *Deutsche Medizinal-Zeitung*, has been proved to be BÖTTGER's test. (It consists essentially in treating the Urine with Carbonate of Soda, and then boiling it with Subnitrate or Hydroxide of Bismuth.)—The **PHENYL-HYDRAZINE TEST,** however, has now been recognized as *decidedly the best* of all known processes for the above-designated purpose.

The **Phenyl-hydrazine Reaction for Sugar** was discovered in 1884 by Prof. EMIL FISCHER ([116]), now of WÜRZBURG UNIVERSITY; and was thereupon demonstrated by Prof. VON JAKSCH, of PRAGUE UNIVERSITY, to be practically applicable for the *DETECTION OF SUGAR IN URINE.*—(*Wiener Medizinische Presse.*)

This reaction is founded on the property of the GLUCOSE in the Urine, of forming, with PHENYL-HYDRAZINE, a yellow, crystalline compound: **Phenyl-glucos-azone.**—Following is the empirical formule according to which this transposition takes place:

$$\underbrace{C_6H_{12}O_6}_{\text{(Glucose)}} + \underbrace{2N_2H_3C_6H_5}_{\text{(Phenyl-hydrazine)}} = \underbrace{C_{18}H_{22}N_4O_4}_{\text{(Phenyl-glucos-azone)}} + \underbrace{H_2O}_{\text{(Water)}} + \underbrace{2H.}_{\text{(Hydrogen)}}$$

PHENYL-GLUCOS-AZONE melts at 205° C [401 F]; which fact may, in case of doubt, serve for identifying the precipitate obtained in the test.

The **Test** is conducted as follows:

Dissolve *1 gramme* [15½ grains] of HYDROCHLORATE OF PHENYL-

(116) *Berliner Chemische Berichte*, 1884; p. 580.

HYDRAZINE and *1½ grammes* [23¼ grains] of ACETATE OF SODIUM in *10 cubic centimetres* [165 minims] of WATER; mix this solution with *50 cubic centimetres* [1 fl. oz. and 335 minims] of the URINE on trial; and boil the mixture in a water-bath for half an hour. Then, if there was *but little* SUGAR present, an *Amorphous precipitate* will have formed; if *any considerable proportion* of SUGAR was present, a *Micro-crystalline precipitate* consisting of *yellow Needles* will be witnessed.

If, from any special cause, the distinctively characterized crystallization of the PHENYL-GLUCOS-AZONE should fail to be shown by the above process, E. FISCHER advises the following **Supplementary Process:**

Filter-off the Precipitate obtained as above; *boil* it with ALCOHOL; *filter* the Decoction; *mix* the Filtrate with WATER; *boil-off* the ALCOHOL from the Mixture. Thereupon the PHENYL-GLUCOS-AZONE present will *crystallize* from the liquid in the characteristic yellow Needles above mentioned.

At the patient's bedside, the *Supplementary Process* just described may be found too complicated; but, with the exception of very rare cases, the practitioner will have no occasion to employ it at all; for, even in the presence of quite small quantities of SUGAR, the *Main Process*, as first above cited, is usually amply sufficient for procuring indubitable results.

VON JAKSCH has found that, after poisoning by POTASSA-LYE or SULPHURIC ACID, or by ARSENIC, the Urine contained *no Glucose*, although it abounded in Reducing Substances. On the other hand, the Urine of three persons poisoned by CARBON DI-OXIDE, as also that of three persons killed by breathing IRRESPIRABLE GASES, contained GLUCOSE. The same was found after large doses of SALICYLIC ACID, and after Narcosis by CHLOROFORM. In all these cases the PHENYL-HYDRAZINE reaction *gave full light.*

It should be remarked, however, that Urines very rich in ALBUMEN, must be *de-albumenized* by Acidulation, Boiling, and Filtering, before beginning the Test.

The **Phenyl-hydrazine Method** affords a means, likewise, of detecting GLUCOSE in DE-ALBUMENIZED BLOOD; as also in quite a series

of TRANSUDATES and EXUDATES of the Abdominal and Pleura cavities.

—PHENYL-HYDRAZINE forms a Chemical Compound also with LACTOSE. This Compound—PHENYL-LACTOS-AZONE = C_{24} H_{32} N_4 O_9—could, however, not be detected by VON JAKSCH in the Urine of lying-in women.

—G. ROSENFELD communicates the following facts in relation to relative degrees of sensitiveness of the **various Urine-Sugar tests,** —showing the *high superiority* of the PHENYL-HYDRAZINE METHOD:

METHOD.	LIMIT OF SENSITIVENESS.	REMARKS.
Heller's Test.—Boiling with CAUSTIC POTASSA produces a yellow to reddish-brown color	0.5%	
Trommer's Test.—Add to the Urine 1–2 drops SOLUTION of COPPER SULPHATE and 4–5 cubic cm. (65–80 minims) SODA-LYE Compound; in the presence of Sugar, the precipitate which is formed re-dissolves; and, on heating, CUPROUS OXIDE is precipitated	0.25%	
Fehling's Test.—Boil with COPPER SULPHATE, POTASSIUM TARTRATE, and CAUSTIC SODA SOLUTIONS; whereupon CUPROUS OXIDE separates. [For details, *see* SOXHLET (117.)]	0.25%	
Boettger's Test.—*See Text above*	0.01%	Occasionally to this limit; not sufficiently reliable.
Rubner's Test.—Add AMMONIA and SOLUTION of LEAD SUBACETATE; warm the precipitate, which thereupon takes a bright to deep-red color	0.01%	As above.
Seegen's Test.—Filter through CHARCOAL, and then proceed according to TROMMER'S Test	0.01%	As above.
Molisch's Test.—Add a 15 to 20% ALCOHOLIC ALPHA NAPHTHOL SOLUTION, shake, and add double the quantity of CONCENTRATED SULPHURIC ACID; violet color results; on addition of water a blue-violet precipitate occurs	0.01%	As above.
Johnson's Test.—PICRIC ACID and POTASSA SOLUTION: Deep red color	0.01%	As above.
Penzoldt's Test.—Mix the *Alkalized* Urine with an equal volume of a freshly prepared AQUEOUS SOLUTION of DIAZO-BENZOL-SULPHONIC ACID: Orange or bright red color	0.01%	As above.

(117) *Journal fuer Praktische Chemie, XXI, p. 239.*

Method.	Limit of Sensitiveness.	Remarks.
Agostini's Test.—5 drops of Urine; 5 drops of a 0.5% Auric Chloride Solution; 3 drops of a 20% Potassa Solution;—warm slightly: Red color.....	0.01%	As above.
Einhorn's Fermentation Saccharometer.—The Urine is fermented by the aid of Compressed Yeast, and the Carbon Di-oxide evolved is measured in a gaseous form. [For details, *see* Penzoldt ([118])].....	0.05%	Cumbrous process.
Worm-Mueller's Test.—A modification of Fehling's Method, by keeping the reagents—Copper Sulphate Solution on the one hand, Rochelle Salt and Caustic Soda Solutions on the other—*separate* until used...		With *small* proportions of Sugar there are contradictory results.
PHENYL-HYDRAZINE TEST.—According to Fischer-Jaksch.—*See Text above*.....	0.033%	Conclusive results.

—A *slight defect* adheres to the Phenyl-hydrazine Test; which can, however, be readily obviated in case of need. According to Thierfelder & Geyer, (*Prager Medizinische Wochenschrift*), Phenyl-hydrazine forms precipitates, not only with the various Sugars, but also with Glycuronic Acid, which likewise occurs in Urine. This precipitate, like the one above described, consists of yellow needles, and is insoluble in Water, but readily soluble in Alcohol. Its formule is: $2C_{42}H_{48}N_{10}O_2$.—This Compound of Phenyl-hydrazine and Glycuronic Acid may be distinguished from Phenyl-glucos-azone *without any difficulty*, by the considerable difference between the *melting points* of the two,—the former melting at 114–115° C (about 238 F); while the latter melts at 205° C (401 F).

STROPHANTHIN ([119]) —[*See* "Merck's Index,", p. 138.]— was subjected, by Drs. Rothziegeland R. von Koralewski of Vienna, to an exhaustive course of *Therapeutical Investigations;* which brought the two Clinicians to the conclusion that Strophanthin may be safely taken as a **Succedaneum for Strophanthus Tincture.**

Dr. Rothziegel has recently resumed his former researches on

([118]) "Aeltere und Neuere Harn-Proben"; Jena, 1884.

([119]) *See*, also: Merck's Bulletin for 1888; pp. 1–2, 52–53.

STROPHANTHIN, and has reported on the very favorable results thus obtained, before the "NINTH CONGRESS FOR INTERNAL MEDICINE," which was in session in Vienna from the 15th to the 18th of April of this year.

The following statements are condensed from Dr. ROTHZIEGEL'S Report, according to a Synopsis published at the time in the *Wiener Medizinische Presse:*

The *Single Dose* was from 2 to 3 decimilligrammes ($^1/_{300}$–$^1/_{200}$ grain); the *Daily* being 1½–3–5 milligrammes ($^1/_{40}$– $/_{20}$–$^1/_{12}$ grain).

The *Form of Exhibition* was either in

Drops:

STROPHANTHIN 0.003–0.005 gramme [$^1/_{20}$–$^1/_{12}$ grain]; Distilled Water or Cherry-laurel Water, 10 grammes [160 minims];—*Ten to Twenty drops every 2 hours;*—

or in *Capsules* of 0.0003 gramme [$^1/_{200}$ grain] each; or, sometimes, in **Hypodermic Injections** of 0.0005 gramme [$^1/_{125}$ grain] each.

The **Results of this Medication** were as follows:

1:—The CIRCULATORY SYSTEM is affected in an evidently beneficial manner. The effect consists principally in strengthening and regulating the *Pulse*, the first stage of which occurs even after quite small doses—0.0002–0.0003 gramme [$^1/_{300}$ to $^1/_{200}$ grain]—and mostly within quite a short period, being 5–10 minutes. This stage is, later on, followed by the equalization of the Arythmia,—mostly not until the second or third day after Dosage. It usually occurs *later than* after DIGITALIS; but, upon continuance of the medication, it *persists* considerably longer, and particularly so for some time after the termination of an extended period of STROPHANTHIN Medication.

2.—Especially the troubles consequent upon the various ORGANIC LESIONS OF THE HEART, to wit: Dyspnea and Palpitation, are affected favorably by STROPHANTHIN. As a rule, the Respiratory trouble is brought to a cessation sooner than the Palpitation. In *Nervous* Palpitation a permanent effect is *not* to be expected with any certainty.

3.—In case of REDUCED DIURESIS in consequence of insufficient heart-action, the Urinary secretion is decidedly augmented by STROPHANTHIN; still, the augmentation often takes place only after a cer-

tain extended period of medication. STROPHANTHIN does not, usually, procure such intensive. Diuresis as DIGITALIS or STROPHANTHUS TINCTURE; but the increase continues for several days after the cessation of the STROPHANTHIN Medication, and it appears to be procured only by an intensification of the *blood* pressure, not by direct action on the Kidneys. Irritation-symptoms in the Renal region *were not observed.*

4.—Even on long-continued use of STROPHANTHIN, *Gastric Disturbances* occur only in extremely rare cases; and when they do take place, the medicament given in CAPSULES is usually well enough borne. On the other hand, however, an *increase of appetite* was frequently observed after the use of this remedy. The *Movements of the Bowels* are not affected by STROPHANTHIN Medication; nor is the *Perspiration* augmented.

5.—The *Nervous system* is influenced but indirectly,—that is, by the Regulation and Invigoration of the Heart-action.

6.—*Cumulative effects* were *not* observed after STROPHANTHIN. It can be administered for three weeks *without deleterious effect.*

7.—In Weakness of the Heart, SUBCUTANEOUS INJECTIONS of Aqueous Solutions — 0.0005 gramme ($^1/_{125}$ grain) of STROPHANTHIN per dose—bring about a rapid and enduring invigoration of the pulse; and, if they are guarded by strictly antiseptic measures, no local or general irritation-symptoms are liable to survene.

8.—**Strophanthus Tincture** must be admitted to deserve, in general, the preference over STROPHANTHIN; inasmuch as the TINCTURE operates with greater certainty, rapidity, and energy than the GLUCOSIDE. This remark applies most particularly to their action upon the Diuresis.

There being cases, however, in which both STROPHANTHUS TINCTURE *and* DIGITALIS, *and likewise the other* CARDIAC MEDICAMENTS *are not well borne, but in which* STROPHANTHIN *is well borne,—the latter deserves to be characterized as a* **Good Succedaneum for Strophanthus Tincture.** *Cases have even been observed in which all the known Cardiac Remedies failed, while the exhibition of* STROPHANTHIN *was attended by good results.*

9.—*The indication for the employment* of STROPHANTHIN in Valvular Defects with or without affections of the Myocardion,—and also in Organic Lesions of the Heart Muscle alone,—is furnished by *insufficiency of the Heart-action* and its consequent symptoms.—Also in *Acute or Chronic Bright's Disease*, and in *Pleurisy*, STROPHANTHIN procures an Augmentation of the Diuresis *only* when the latter has been reduced in consequence of insufficient heart-action. Thus, in *Tubercular Pleurisy*, it is inefficient.

It should be remarked that,—both in the *older* series of experiments, executed by ROTHZIEGEL conjointly with VON KORALEWSKI, and in the *recent* series executed by ROTHZIEGEL alone, and reported-on *as above*,—**Strophanthin Merck** *was used exclusively*, and that, therefore, all the favorable observations reported herein refer *only to this brand* of the Medicament discussed.

Atropine — [*See* "MERCK'S INDEX," p 21.] — **in Chloroform Narcoses,** according to LUDOVICO VICINI ([120]), has the following merits:

Firstly,—PARALIZATIONS OF THE HEART AND LUNGS, which are liable to occur in Chloroform Poisoning, are prevented by ATROPINE;

Secondly,—Even when, in a CHLOROFORM NARCOSE alarming symptoms have already begun to appear, ATROPINE *still* exercises its beneficial effect.

For a merely *Prophylactic purpose* a **Subcutaneous Dose** up to 2 cubic cm.! (32 minims!) of a $^1/_{10}\%$ SOLUTION of ATROPINE SULPH. in Water, is used for *adults;* half as much for *children.* When *Paralytic Symptoms* have already appeared, the dose may be doubled.

Usually it is preferred to inject into the *Cellular Tissue;* but, if tracheotomy has been performed, the Solution may be introduced *directly into the trachea. In grave complications*, a **Direct Injection** INTO THE AIR PASSAGES is indicated; for then the ATROPINE has an opportunity to act *immediately upon the left ventricle*, which is the first desideratum.

(120) *Gazetta degli ospitali*, 1888; p. 49.

Johannesia Princeps,—(*Anda-Assu*),—**Seed.** (*Euphorbiaceæ.*) Indigenous in Brazil.

The ANDA ASSU SEEDS have been used in Brazil, from time immemorial, as a very efficient **Purgative** in HEPATIC DISORDERS, JAUNDICE, DROPSY, MENSTRUAL TROUBLES, and SCROFULA.

The SEEDS contain a *Fatty Oil*, which is a PURGATIVE like Castor Oil, and is given in a dose of 10 grammes (160 minims); still, the SEEDS are considerably more efficacious than the *Oil* procured from them. It is usual to exhibit 2 of the SEEDS, triturated into an Emulsion, or combined with STARCH, SUGAR, MILK, and AROMATICS ([121]).

Nicotine—[*See* "MERCK'S INDEX," p. 98.]—**in Singultus.**—Dr. HIGGINBOTHAM has established the fact that *very obstinate cases* of SINGULTUS may be successfully treated by **Internal Administration** of NICOTINE

The medicament is, for this purpose, best exhibited *in Pills*, containing 0.0015 gramme [$^1/_{40}$ grain] of NICOTINE each.

It should be borne in mind, in prescribing, that the MAXIMAL DAILY DOSE of NICOTINE is 0.003 gramme [$^1/_{20}$ grain]—(WERTHEIM).

Paullinia Pinnata, (*Timbo*),—**Bark.** (*Sapindaceæ.*) Indigenous in Brazil.

All parts of this plant contain a pungent, poisonous, narcotic principle. In Brazil, the POWDERED ROOT BARK is used *externally*, in plaster-form, in **Liver Ailments.** It has quite an irritating effect on the *Skin*, whereby a healing action is supposed to be produced.

SAINT-MARTIN discovered, in PAULLINIA PINNATA, the Alkaloid TIMBONINE ([122]).

Protopine, ALKALOID, PRECIPITATED.—This is *one of the rarest* NATURAL OPIUM BASES, and has probably not been obtainable in the drug trade *hitherto.* The yield of it is very small; Mother-Liquors,

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(121) Christy's "New Commercial Plants," pt. VII: p. 55—and: *Pharmaceutical Journal and Transactions*, 1881; p. 796.

(122) BECKURI'S *Jahresbericht*, 1887; p. 159.

which yielded a pound of CRYPTOPINE and 5 ounces of LAUDANUM, ([123]) yielding only about 1½ ounces of PROTOPINE.

PROTOPINE is but difficultly soluble in Boiling Alcohol; and it crystallizes from the solution in opaque, uviform aggregations. It melts at 201 degrees C (393.8 F).

The behavior of PROTOPINE toward Ether is remarkable. If an Aqueous solution of a PROTOPINE Salt be covered with a stratum of Ether, and Ammonia be then added and the whole shaken, the *amorphously* precipitated Alkaloid *completely dissolves* in the Ether; whereas, in the *crystalline* form, the Alkaloid is *very difficultly soluble* in Ether. Hence, in proportion as it changes into a crystalline form, it begins to *crystallize out* of the Ether. The product of this crystallization is in the form of opaque, uviform conglomerations.

PROTOPINE *is a strong base* and forms CRYSTALLIZABLE SALTS, which do not gelatinize, and which are partly soluble, though with difficulty, *in cold Water*.

The *Therapeutic properties* of PROTOPINE appear not yet to have been ascertained.

Siegesbeckia Orientalis,—(*Herbe de Flacq*),—**Herb.**—(*Synantheræ.*)—**An Active Dermic Drug.**—Indigenous in the East Indies, China, South America, Mauritius.

The SIEGESBECKIA Plant, in Mauritius, is valued as a powerful **Sudorific and Alterative,** and *given externally* as such in SYPHILIS and LEPRA; and also *applied externally* in various DERMATIC DISEASES. AUFFRAY ([124]), in 1845, discovered in this plant a crystalline bitter principle, to which he gave the name of "Darutyn."

HUTCHINSON ([125]) employed an ALCOHOLIC TINCTURE of SIEGESBECKIA externally in *Herpes circinatus* and *Herpes tonsurans*, in SYCOSIS and in PITYRIASIS VERSICOLOR. In all his cases, a mixture of equal parts of the Tincture and of Glycerin was used as an embrocation to the affected parts. The medicament appears to act as a *stimulant* and

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([123]) *See* MERCK'S BULLETIN, 1890; p. 37.

([124]) *Pharmaceutical Journal and Transactions*, 1886; p. 1047.

([125]) *Les Nouveaux Remèdes*, 1888; p. 453.

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* NEW REPORTS ON PYOKTANIN.

Dr. SCHUBERT, of Reinerz, describes (127) three cases of **Crushed and Bruised Limbs,** treated by him with BLUE PYOKTANIN with *very favorable results;* which, the Doctor says,—

> " ..... *would certainly not have been obtained so quickly and so simply by* OTHER ANTISEPTICS."

All these three cases occurred in quarry work. *In Case No. 1*, the fleshy parts and the nail of the left index finger had been completely torn off from the bone, down to the palm.

Case No. 2 was of a similar nature, on the fourth finger of the right hand, except that the flap was also cut in two through its entire length.

Case No. 3 consisted in contusions of the second right toe, with a transversal wound one centimetre [$^2/_5$ inch] in length.

The patients came directly from their work with dirty hands and feet. *Purposely*, the injured limbs were neither washed nor disinfected. The only application made, consisted in painting the traumatic surfaces and the rest of the injured finger or toe with a PYOKTANIN SOLUTION of 1:500 – 1000; the torn parts were reposited,—*not sutured*, but only kept in place by a strip of Iodoform Gauze; this was covered with Wadding and a Starch Bandage.—On the next day, the lacerated parts were once more taken apart and painted *with the same Solution.* When inspected they exhibited a beautiful rose color *and no signs whatever of irritation.* The Bandage was replaced as on the previous day. After another day, *Agglutination of the Traumatic Surfaces* had already taken place; simple treatment by Zinc Ointment completed the cure *in a very brief time.* There was *exceedingly little* Desquamation of Tissue in the finger cases. In the toe case a complete cure was effected in five days, by *once painting* with the PYOKTANIN SOLUTION and then continuing with Zinc Ointment.

(127) *Deutsche Medizinal-Zeitung*, 1890; p. 800.

A simple superficial **Panaritium** in the same patient *was cut short at once* by a single painting with the PYOKTANIN SOLUTION.

After reporting the above facts, Dr. SCHUBERT adds:

> "In the treatment of these cases I was guided by the supposition that the Bacteria could not yet have penetrated deeply, and thus could be easily reached, dyed, and hence *sterilized* by the PYOKTANIN. This supposition was confirmed by the results,—the wounds exhibiting an excellent, fresh rose color after the first day; without the least sign of irritation; *nor was any pain felt after the painting*, with the exception of a slight caustic sensation."

The Doctor further recommends applying the "stronger solutions," such as 1:500–1000, with a brush; in order to *avoid staining the operator's hands.*

Dr. O. PETERSEN, of St. Petersburg, reports ([128]), on FORTY-EIGHT cases treated by PYOKTANIN, either in PENCIL or SOLUTION. Of these 48 cases, 20 were of *Ulcus Molle*, 8 of *Ulcus Durum*, while the remaining 20 were made up of *Ozæna*, *Ulcera Gummosa*, *Keratitis*, and some small *Cuts.*

The results in ULCUS MOLLE were sufficient to cause the report to state that the new medicament is *not inferior* to IODOFORM.

—IRRIGATIONS of 1-% SOLUTION *speedily abolished the Mal-odor* in OZÆNA SYPHILITICA, and procured *clean surfaces of the Ulcers* within three or four days. In all the other cases observed, *favorable results were likewise obtained.*

Thence, Dr. PETERSEN draws the following conclusions:

> "1.—PYOKTANIN, both *Yellow* and *Blue*, used in PENCILS, in DUSTING POWDER [2:100 Talcum], and in SOLUTION [1:100–2000], *undoubtedly exercises an Anti-bacterial action* on **Infected as well as Uninfected Traumatic Surfaces and Ulcers,**—its action being *not in anywise inferior* to that of IODOFORM; while it has the advantage, over the latter, of *inodorousness.*
>
> "2.—PYOKTANIN acts *very beneficially*, not only in **Eye Troubles,** but likewise in **Ulcus Molle** and **Gummous Ulcers.**
>
> "3.—DELETERIOUS ACCESSORY EFFECTS were *not* observed; nor any TOXIC ACTION."

In a subsequent communication, Dr. PETERSEN adds to the above that, since his first report, he used PYOKTANIN in *several hundred more*

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(128) *St. Petersburger Medizinische Wochenschrift*, 1890; No. 27.

cases of **Ulcus Molle** with the best of success, and that he now *entirely dispenses with* IODOFORM. Also in **Urethritis,** Injections of $^1/_{10}$–1-% SOLUTIONS furnished *good results.* (The only caution recommended by the Doctor is, not to spot the linen. He therefore orders, in every case, a vial of DILUTED MURIATIC ACID for *discoloring* any such spots.)

Dr. ADOLPH KESSLER, of New York (129), lauds PYOKTANIN as having enabled him to achieve *marvelous successes in all the cases* wherein he employed it. It abolished, with surprising rapidity, all the secretions even of OLD WOUNDS, *which had resisted every other Antiseptic.*

Two cases are specially detailed.—One was of **Syphilitic Ulcerations** in the bones of the head, of two months' standing, which, after drainage, under application of a strong PYOKTANIN SOLUTION, *at once ceased to discharge Pus.*

The other special case was that of a Paralytic suffering from severe **Decubitus,** and **Gangrenous Dermatitis,** of 18 months' standing, which had been *ineffectually* treated by several physicians. Dr. K. applied PYOKTANIN PENCIL thoroughly; and *after 24 hours all Purulence was gone*, healthy granulations appeared, and the patient's condition, at the time of the report, exhibited the most encouraging signs of approaching *complete recovery*, as far as possible in his case.

The Doctor's impression of PYOKTANIN is summarized by himself as follows:

> " ..... The fact remains that PYOKTANIN **interferes with the causation of Suppuration** *in every form and shape* I have thus far met with ; **sterilizes and aborts the Pyogenic matter,** *and causes rapid improvement, favorable tissue metamorphoses, cicatrization, and healing.*"

Dr. J. FESSLER (130) reports principally on the use of PYOKTANIN SOLUTIONS *of two strengths:* 1 in 10,000; and 1 in 1000.—*The former* was employed in **Fresh Cuts and Contusions** on the Head,—some of them *reaching to the skull-bone.* The Wounds were washed with the above SOLUTION, then covered with ABSORBENT GAUZE steeped in the same SOLUTION, and tied up with Wadding. They were *cured in 4–8*

(129) *Medical Record*, 1890; Vol. XXXVIII, No. 1.

(130) *Münchener Medizinische Wochenschrift*, 1890; No. 25.

days, without exhibiting any reaction. In the *severe* cases of CONTUSION, *Strips* of the STEEPED GAUZE, as above, were laid *into* the wound, after the washing.

The Doctor then made **Bacteriologic Experiments** on Cultures of PYOGENIC GERMS, which showed that, *to destroy these*, a STRONGER SOLUTION was required. He therefore used one of the second strength above stated [1 in 1000] on **Strongly Purulent and Contused Wounds,** and obtained *excellent results* therewith. *Even when highly inflamed*, the color of the Wounds rapidly assumed a healthy, *fresh tone* of red, while the INFLAMMATION *speedily subsided.*

---

* **Hydro-quinone** (HYDRO-CHINONE) — [*See* "MERCK'S INDEX," p. 69] —is well known as an excellent **Photographic Developer.**

Latterly, a preparation has been found in the markets under this name, which consists of *Lemon-yellow crystals*, and which is said to be very permanent towards Air and Light.

This Yellow substance has been analyzed by E. MERCK'S LABORATORIES, and found to be A COMPOUND OF HYDRO-QUINONE WITH SULPHUROUS ACID, according to the formule: $(C_6H_6O_4)_3.SO_2$;—while **Pure Hydro-quinone** (*para*-DI-OXY-BENZENE!) *is perfectly white.*

The latter should always be furnished when "HYDRO-QUINONE" is ordered; while the above described *Yellow compound* should be ordered by the name of **"Permanent Hydro-quinone."**

---

* **Hypnal** (TRI-CHLOR-ALDEHYD-PHENYL-DI-METHYL-PYRAZOLONE)— consists of one molecule each of CHLORAL and ANTIPYRINE. It occurs in white crystals, which are inodorous and insipid; thus, it is *entirely free from the Caustic Quality* of CHLORAL HYDRATE. It is soluble in 5–6 times its weight of Water, and melts at 58–60° C [136–140 F].

According to the researches of BARDET ([131]), HYPNAL is *a very efficient* **Hypnotic,** which, given in DOSE of 1 gramme [15 grains], in various *painful conditions, always succeeded* in inducing several hours' sleep.

BARDET recommends the use of HYPNAL in those cases where the combination of CHLORAL and of ANTIPYRINE appears indicated. THE

(131) *Nouveaux Remèdes*, 1890; p. 135.

SPECIAL VIRTUE of the new remedy consists in the *Entire Absence of the irritating effects* in the stomach, exercised both by ANTIPYRINE and CHLORAL HYDRATE. Another advantage of HYPNAL over some other Hypnotics is, that comparatively *small doses* only are needed, of this substance, for producing the hypnotic effect.

*** Lithium Compounds**—[*See* "MERCK'S INDEX," pp. 83–84]

The various SALTS OF LITHIUM are obtaining more and more of a hold on Therapy, on account of their excellent action in **Uric Diathesis, Renal Colic, Diabetes, etc.**

The consequent augmentation of the demand has caused the appearance of *very cheap* LITHIUM PRODUCTS in the markets. Their quality has been *lowered proportionally* to the price, or more; so that many of them come nowhere near answering the requirements of the various Pharmacopeias. E. MERCK'S LABORATORIES have recently had occasion to analyze some such inferior LITHIUM CARBONATES, for instance, as were offered in the markets; the very *external appearance* of which gave evidence of their impurity.

The application of the Tests showed that several of those preparations were not clearly soluble even in Acidulated Water; and all of them showed more or less contamination with Sulphuric Acid, Chlorine and Iron,—impurities which ought not to be found even in a *commercial article* of LITHIUM SALTS.

*** Manganese Oxalate** — [*See* "MERCK'S INDEX," p. 88] — $Mn\,C_2\,O_4 + 2H_2\,O$—appears as a white crystalline powder, which is but *very slightly soluble* in Cold or Hot Water. According to JOHN CASTHÉLAZ (132), it is decomposed, at 150° C [302 F], into CARBON DI-OXIDE, CARBON MON-OXIDE, and MANGANOUS OXIDE. The same decomposition takes place also in the presence of **Fatty Oils,** whereupon the MANGANOUS OXIDE dissolves in the Oil and imparts to it a strong **Siccative** property ; at the same time, the BOILING POINT of the Oil is lowered, whereby *almost colorless products* may be obtained.

These qualities appear to make MANGANESE OXALATE a valuable

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(132) *Bulletin de la Société de Chimistes de Paris*, 1888 ; Vol. I, p. 597.

agent for the preparation of *DRYING OILS; better results* are said to be obtained with it than with the SULPHATE, BORATE, or ACETATE of MANGANESE.

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* **Mercur-thymol, Acetate** — [*See* "MERCK'S INDEX," p. 89] — has been described before in this journal (133), where a condensed report of the special investigations by Drs. JADASSOHN and ZEISING, of Prof. NEISSER'S CLINIQUE at Breslau, on this subject, was given. *The favorable results* obtained by the Clinicians named, have since been *amply confirmed* by the researches of Dr. E. WELLANDER, of Stockholm, who writes as follows (134):

> "If I am to draw any conclusion from my experiments, it would be, that **Injections** of MERCUR-THYMOL ACETATE are *preferable* to those of MERCURY SALICYLATE. They possess, also, a great advantage over those of CALOMEL, —being *far less painful and but very rarely* occasioning the so-called abscesses, *or any of the other grave sequences* liable to ensue after CALOMEL Injections (at least, when they are given in such large doses as are recommended by SMIRNOFF). Whereas, moreover, the patient may receive, *without sensible inconvenience, a considerably larger dosage* of MERCURY, in the shape of MERCUR-THYMOL ACETATE Injections, than in that of CORROSIVE-SUBLIMATE Injections,—*the former are to be preferred* to those of SUBLIMATE, at least in Hospitals, where the patient can be kept quiet; in Private Practice, also, they possess the great advantage that the patient need not call upon the physician daily.—The Injections of MERCUR-THYMOL ACETATE assuredly signalize quite a **Notable Advance** in SYPHILITIC THERAPY."

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* **Orexin.**—Since the publication of Prof. PENZOLDT'S report (135) on this new **Stomachic,** several communications have appeared, *from other physicians*, who report more or less *success in its use*, according to the nature of the cases treated; thus confirming, generally, PENZOLDT'S conclusions, as previously printed in this journal.

DR. HUGO GLÜCKZIEGEL (136) gives an account of 17 cases of **Lack of Appetite,** occurring in *most various* diseased conditions of patients

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(133) MERCK'S BULLETIN, 1889; p. 5.

(134) *Archiv für Dermatologie und Syphilis*, 1889; p. 453.

(135) MERCK'S BULLETIN, 1890; May.

(136) *Prager Medizinische Wochenschrift*, 1890; No. 13.

of both sexes,—and treated by him with OREXIN. THE FINAL RESULTS WERE:

Remarkably Active Appetite	in	3 cases.
Normal Appetite	"	7 "
Improved Appetite	"	4 "
No Effect	"	3 "
Total:		17 cases.

—Dr. BÉLA IMRÉDY (137) reports 12 cases of *various natures*, but all of them conspicuous in the symptom of **Anorexy,**—treated by him with OREXIN. In 7 of these cases the appetite was *restored.* In 5 others it was *not.*

---

* **Potassium and Cobalt, Nitrite,** — $Co_2(NO_2)_{12}K_6 + 2H_2O$, — appears as a beautifully yellow-colored powder, consisting of microscopic crystals. *It is very slightly soluble* in Cold Water, insoluble in Alcohol and in Ether.

Dr. J. WEST-ROOSEVELT, of New York, states that this Double Salt *does good service* in cases where **Nitrites** are usually employed; as, for instance, in *Dyspnea* or *Increased Blood-Pressure*, in *Albuminurea* as a consequence of Heart-lesions, etc.

This Preparation *is distinguished* from the NITRITES usually employed in Therapy by its comparatively difficult Solubility, and by its Stability; and is, therefore, *more easily controllable* in its effects than the others.

DOSE: 0.03 gramme [½ grain], every 2–4 hours.

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* **Potassium and Gold, Cyanide**—[*See* "MERCK'S INDEX": *Gold and Potassium, Cyanide;* p. 67]—$K\,Au\,Cy_4$.

* **Potassium and Mercury, Cyanide**—[*See* "MERCK'S INDEX": *Mercury and Potassium, Cyanide;* p. 93]—$K_2\,Hg\,Cy_4$.

Both these Double Salts are distinguished for their unexcelled **Antiseptic Action.** Both appear in white, *Water-soluble* crystals. Exhibited by **Hypodermic Injection,** they are *rapidly absorbed.* In ALBUMINOUS FLUIDS they make *no precipitate.*

According to BEHRING (138), who made very extensive researches

(137) *Orvosi Hétilap*, 1890; No. 13.

(138) *Zeitschrift für Hygiene*, 1889; p. 467.

on the development-arresting action of these substances on Anthrax Bacteria, one part of Potassium-and-Gold Cyanide suffices to deprive twenty-five thousand parts of Blood-serum of the property of supporting the existence of Anthrax Microbes. Of the Potassium-and-Mercury Cyanide, only *one part to sixty thousand* of Blood-serum is needed for the same purpose.

The Lethal Dose for Guinea-Pigs, with the *former* Salt, is 1 part in 300,000; with the *latter* Salt, 1 part in 150,000,—of the animal's weight.

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* **Sulphaminol** (Thio-oxy-di-phenyl-amine)—is formed by the action of Sulphur, under proper conditions, on Salts of Meta-oxy-di-phenyl-amine in Aqueous Solution. It is a light yellow powder, inodorous and insipid; *insoluble in Water*, but *readily soluble* in Caustic Alkalis,—less so in Carbonates of Alkalis. It is also soluble in Alcohol and in Glacial Acetic Acid; the solutions being of a light yellow color. At an elevated temperature Sulphaminol takes a brown color, and then melts at about 155° C [311 F].

By contact with the *Animal Fluids*, Sulphaminol is resolved into its two constituents—Sulphur and Phenol. Each of these substances possessing *Considerable Antiseptic Power*, Sulphaminol appears *well adapted for Medicinal Use;* and especially as a **Succedaneum for Iodoform,** *without* exhibiting the drawbacks of the latter.

Prof. Dr. R. Kobert, of Dorpat University, has investigated Sulphaminol **Physiologically,** and found it *entirely innocuous*. It was found that Dogs bore 0.9 gramme of the drug per kilogramme of their weight, *subcutaneously*, without any harm. Given *internally*, Sulphaminol caused neither Toxic nor Purulent symptoms; even the appetite of the animals remained entirely normal. According to Prof. Kobert, Sulphaminol is innocuous also in the Human System.

The Sanitary Councillor, Dr. Moritz Schmidt, of Frankfort-on-the-Main, who tested the properties of Sulphaminol in **Laryngological Practice,** reports ([139]) that his experiments, as far as he could judge from the short period of investigation, gave *very satisfactory*

(139) By letter to E. Merck.

results. Among other statements in that direction he gives the following:

> "I have used SULPHAMINOL principally in PURULENT PROCESSES in the MAXILLARY CAVITY, which form a very good test-object. Their *very strong odor* disappears rapidly, in Dry Treatment, *only* under IODOFORM and SULPHAMINOL. *As against the former*, the latter has the *great advantage* of inodorousness; it therefore deserves decided preference."

—The above-reported results will probably soon be followed by others, which will be duly published in this journal.—SULPHAMINOL seems to be deserving of further THERAPEUTIC INVESTIGATION.

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* **Veratrine, crystallized,**—is *freer from dust* than the **Amorphous Alkaloid,** and is therefore *better adapted for dispensing* than the latter.

Compounds Not Described Therapeutically.

* **Bismuth Phenate,**—an amorphous, whitish powder, *insoluble in Water*, with a faint odor of Carbolic Acid.

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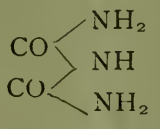
* **Biuret (Allophan-amide)**—



—is in colorless crystals, *poorly soluble* in Cold Water; *readily soluble* in Hot Water and in Alcohol.

---

* **Cerium Valerianate**—$(C_5 H_9 O_2)_3 Ce_3$—is a yellowish-white, crystalline, *difficultly soluble* powder.

---

* **Eucalyptene**—$(C_{12} H_{18})$,—a HYDRO-CARBON prepared from EUCALYPTOL,—is a clear colorless liquid, smelling of Benzene, and *soluble* in Alcohol, in Chloroform and in Ether.

---

* **Iron Aceto-formate, Ferric,** is an amorphous, reddish-brown powder, *soluble* in Water; slightly so in Alcohol; *insoluble* in Ether.

---

* **Iron Phospho-citrate,**—(*according to* LECERF),—is a bluish-green crystalline powder, *soluble* in Cold Water, and *very readily soluble* in Hot Water; *insoluble* in Alcohol.—**Its Taste,** in comparison with that of other Iron Preparations, is but *very slightly inky.*

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* **Gelseminine Tartrate** is in white leaflets, *readily soluble* in Water and in Alcohol.

---

* **Hydrastine Tartrate**—[*See* "MERCK'S INDEX," p. 69]—is a yellowish-white crystalline powder, *soluble* in Hot Water and in Hot Alcohol; *insoluble* in Ether.

* **Potassium Indigo-*mono*-Sulphate**—[*See* "MERCK'S INDEX": *Potassium, Indigo-Sulphate*; p. 112]—is a granulous, bluish, *Water-soluble* powder.

* **Lithium Sulpho-cyanate** (**Rhodanide**) is a whitish, crystalline, deliquescent powder, *little soluble* in Water; more readily so in Alcohol.

* **Magnesium Fluoride,**—a white, crystalline powder, *insoluble* in Water.

* **Maltose** (**Sugar of Malt**),—$C_{12}H_{22}O_{11}+H_2O$,—a white crystalline, *dextrogyre* substance.

* **Methyl Cyanide** (ACETO-NITRILE),—$CH_3.CN$,—[*See* "MERCK'S INDEX," p. 93]—is a colorless liquid, boiling at 82° C [179.6 F]; specific gravity: 0.805 at 0° C [32 F].

* **Pereirine Valerianate.**—The Alkaloid PEREIRINE occurs in the trunk-bark of *Geissospermum læve*, (*Pao Pereiro*),—*Apocynaceæ*.

Its VALERIANATE is a brown, crystalline powder, *readily soluble* in Alcohol; more difficulty so in Water; *insoluble* in Ether.

SELECTIONS.

USE OF PYOKTANIN IN EAR DISEASE. (140)

The *Medical Record*, with its characteristic enterprise, having in the issue of July 5, 1890, pp. 7, 8, through the interesting article of Dr. ADOLPH KESSLER, drawn the attention of the profession of this country to the new bactericide, PYOKTANIN, it having been already tested with success in obstetrical, venereal, general surgical, dermatological, and ophthalmological practice, it occurred to the writer that it might interest your readers to know that it has been successfully employed in otological practice as well, where it seems to possess extraordinary power to subdue suppuration of middle-ear disease.

A brief history of several recorded cases will suffice to demonstrate the possibilities of this new addition to our therapeutic resources.

CASE I.—A man, aged twenty, who had been affected with intermittent otorrhœa, both sides, for some time, when about seven years of age, and who had remained noticeably deaf in the left, slightly so in the right ear after the otorrhœa had disappeared, had been recently suffering from a recurrence of the otorrhœa for about one month in the right, one week in the left ear, preceded by an acute coryza. Both ears were the seat of constant dull pain and tenderness, with autophonous

(140) *Medical Record*, 1890; p. 221.

voice and mephitic discharge. The otitis was complicated with chronic atrophic naso-pharyngitis, dental caries, and eruption of third molar teeth, constipation, epistaxis, nicotism, sniffing up salt water, etc.

The left membrana tympani was found perforated (about $^{3}/_{16}$ inch opening) in the anterior inferior quadrant, the anterior inferior middle third of corresponding canal wall being swollen and tender. The lower part of the right membrana tympani and the manubrium mallei were hidden from view by a soft polypus, which seemed to spring from a pedicle very close to, if not upon, the manubrium mallei. The relation of the parts making it difficult to ensnare it without including the bone, the polypus was removed with the cutting hooped curette, and was found somewhat double-lobed and about one-fourth inch in diameter. After hemorrhage had ceased, and both ears had been carefully cleansed, each was in turn filled with PYOKTANIN solution, 1 to 1,000, which was permitted to remain within the ear for ten minutes or more, the surplus solution being then carefully removed from the canal with a brush of absorbent cotton wool, the meatus being subsequently closed with a wad of this.

The discharge from the right ear, next day, was but slight and serous in consistency, appearing to be but what remained of the solution instilled before. There was no appreciable discharge from the left ear, the rim of the perforation of the drum-head of this ear appearing dry and cicatricial except at its anterior and inferior edge. The left canal was still swollen. There had been a slight epistaxis during the preceding night. A cleansing spray to nares, and PYOKTANIN solution to both ears were introduced, and an aperient prescribed. On the day following there was no visible discharge from either ear, and the right ear felt perfectly well to the patient. Aperient continued. Two days thereafter, both ears feeling comfortable, a Blake's paper disk was applied to the perforation of the left drum-head, where it has since remained. There has been no return of otorrhœa or subjective aural symptoms, and the hearing of both ears has improved.

CASE II.—A youth, aged nineteen, who had suffered for four years from otitis media purulenta chronica, both sides, following excessive diving, and who had been operated on for aural polypus, was compelled to leave college because of incapacitating deafness. The disease of the left ear had been partially subdued. General anæmia, crowding, and caries of the teeth, etc., had complicated the otitis. Both ears had a mephitic discharge, and the symptoms of autophonia. There was a slight perforation of Shrapnell's membrane of the right ear. The left membrana flaccida was perforated ($^{1}/_{8}$ inch opening), the margotympanicus (auditory plate) melted away, and the malleoincus visible in the tympanic attic.

The right ear was cured at once, the left almost so within four months, with the ordinary remedies. The slight discharge persisting in the left ear, with other phenomena attending aural polypoid growths, disappeared within several days after removal of a polypus, then invisible, through the perforation from the attic, by

pneumatic pressure, the air being pumped from the sealed external auditory canal. The attic remained dry for one month, when, on undue exposure to a draught of cool air, a severe acute coryza developed, and a subsequent recurrence of his otitis media, with otorrhœa, left side. After waiting one week without treatment, and the trouble increasing with progressive deafness, medical assistance was sought. The ear having been carefully cleansed, PYOKTANIN solution, 1 to 1,000, was instilled into his ear for the first time, being allowed to remain therein about ten minutes, some of it having been forced into the attic through the atrium and Eustachian tube by pneumatic pressure until the air following had been heard to escape into the naso-pharynx, the surplus solution then being removed from the canal with a brush of cotton wool, and the meatus subsequently closed with a wad of this. There has been since that day no evidence whatever of inflammation. It should have been previously mentioned that the patient had so far regained his hearing during the early treatment, as to resume his old place at college without further embarrassment.

The preparation used in the above cases was the BLUE PYOKTANIN of E. MERCK, of Darmstadt, prepared in tablet form, each tablet containing 0.10 gramme PYOKTANIN. Very respectfully yours, ROBERT BARCLAY, A.M., M.D.

3211 LUCAS AVENUE, ST. LOUIS, MO.

GATHERED FORMULAS.

INDEPENDENT of the TEXT-MATTER.

20.—SCABIES OINTMENT (141).

Alpha-OXY-NAPHTHOIC ACID.....1 *part by weight.*
Vaseline.....10 *parts by weight.*

—(*MAKE OINTMENT.*)—

21.—ICHTHYOL for Vaginal Tampons.—FREUND (142).

AMMONIUM SULPHO-ICHTHYOLATE.....1 *part by weight.*
Glycerin.....20 *parts by weight.*

Mix; and moisten a COTTON TAMPON with the mixture, before introducing the same into the Vagina.

22.—ERGOTININE (*Alkaloid!*) in Metrorrhagia (after PARTURITION, FIBROMES, etc.).—BARONI (143).

— For Subcutaneous Injections. —

ERGOTININE ALKALOID, CRYSTALLIZED..... } *each*.... 0.2 gramme [3 grains].
Lactic Acid..... }
Cherry-laurel Water.....20 grammes [5½ fl. dr.].
Distilled Water.....80 " [2¾ fl. oz.].

Inject 14–17 Drops.

(141) *Therapeutische Monatshefte*, 1889; Feb., p. 76.

(142) *Berliner Klinische Wochenschrift*, 1890; No. 11.

(143) *Rivista Clinica e Terapeutica.*

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[For "First Report," see June Number of "Merck's Bulletin."]

PROF. STILLING'S SECOND REPORT ON PYOKTANIN.

—(PHYSIOLOGICAL AND THERAPEUTICAL PART.)—

1.—INNOCUOUSNESS OF PYOKTANIN.

[The report begins with a detailed description of a number of animal experiments made by Prof. Stilling, showing that PYOKTANIN exercises no chemical or escharotic action on mucus membranes,—such as the conjunctiva,—nor on the blood corpuscles when introduced into the interior organs; no signs of irritation, pain, or unusual secretion having appeared in any case, even when the PYOKTANIN was applied to delicate parts in PURE POWDER and in considerable quantities. The report then continues giving some instances of similar experiments on the human eye, etc., —as follows:]

"An insane patient in my clinique had been recently iridectomized of one eye for glaucoma, but had become incurably blind of the other eye from glaucoma absolutum. I dusted this blind eye plentifully with PURE BLUE PYOKTANIN. From the second day there was a strong hyperemia of the conjunctiva, but without secretion and without edema of the lid. During the eight days which the hyperemia continued, the patient constantly kept the affected eye wide open, while the cornea did not show the slightest alteration.

"A new-born infant with blenorrhea, infected by its mother who was suffering from vaginal gonorrhea, had both corneas perforated, without any reduction in the purulence,—a desperate case. I dusted the eyes plentifully with PURE PYOKTANIN POWDER, daily, for a number of days. Only after a few days a moderate lid-swelling arose; while at the same time the suppuration decreased. At last a degree of success was attained which, in this desperate case, may be called a happy one; that is, a sufficient part of the cornea was preserved to enable an iridectomy to be proposed,—which otherwise would probably not have been the case.

"On instilling SOLUTIONS (with animals, as a rule, 1:1000) I never witnessed any irritation; the same with human patients, although I treated hundreds of them thus. I have even continued SOLUTIONS of 1:100 for a length of time, without ever causing anything more than hyperemia, which very rapidly disappeared on a reduction of dose.

"I have inflicted large shallow wounds on the backs of rabbits,

then loosened the subcutaneous tissue and inserted quantities of 2–3 grammes [30–45 grains] of PURE PYOKTANIN into the cavities thus artificially produced. The wounds conglutinated under the formation of a gilt-looking crust ; not the least tumefaction or inflammation was noticeable in the surrounding region ; the general health of the animals did not suffer the slightest disturbance.

" PYOKTANIN may, therefore, be considered as *absolutely non-toxic* for external application, such as has to be made in surgical diseases of all kinds. A gramme of PYOKTANIN, however, on account of its slight specific gravity, represents such a large volume as to be sufficient for covering a traumatic or ulcerous surface of very considerable extent, and to produce a crust over it."

[Hereupon the Professor deduces from EHRLICH's experiments on Alizarine, that the calculated quantity of PYOKTANIN which might be dusted on or into a wound in a human patient without detriment, amounts to at least 50 grammes [13 drams], —"an immense quantity, which would never be even approximately required in actual practice."—The report then continues:]

" The internal action of PYOKTANIN is to be considered a purely mechanical one, as appears from its effects on animals fed with it. In them, the intestine is found blued, while the stomach is not. The same is found after direct injection into the peritoneal cavity.—The coloring matter, thus, appears to be reduced by the hydrochloric acid in the stomach, then immediately oxidized again in the intestine; and it leaves the latter in its original condition, as shown by the intensively blue coloration of the feces. The same is true of the urine.

" On all the foregoing considerations, PYOKTANIN—being freed, as it is, from all foreign matters, especially from arsenic, copper sulphide, and zinc chloride, which contaminate the *ordinary* coal-tar colors of the market—must be designated as *an absolutely non-toxic substance.*

" The experiences which have become public since my first communication have completely confirmed this non-toxicity.

" Since the date of that communication I myself have used PURE PYOKTANIN POWDER in quite large quantities on traumatic and ulcerous surfaces, not only of animals, but also of human patients occasionally, —without any deleterious effect whatever. As for the syringing of

serous cavities, there are, even at this date, experiences which confirm the non-toxicity of PYOKTANIN also in this direction. In empyemas I have seen PYOKTANIN SOLUTIONS of 1 : 5000 to 1 : 1000 injected in great quantities without harm.

2.—DIFFUSIBILITY OF PYOKTANIN.

"PYOKTANIN is extremely diffusible; it permeates the tissues of the living body with great facility. A rabbit, having an injection of 15 cubic centimetres [240 minims] of a $^1/_{10}$-% PYOKTANIN SOLUTION applied hypodermatically on its back, and being killed a short time afterwards, shows the surface of the abdominal cavity dyed blue.

"When a PYOKTANIN SOLUTION is injected into an empyema, the expectorations of the patient show a blue color for days thereafter. The capacity of PYOKTANIN, of very rapidly permeating the cornea, coloring the iris, and enlarging the pupil,—as stated by me in my first communication,—has been confirmed also by the experiences of others.

"An unexceptionable demonstration of the high degree of diffusibility peculiar to PYOKTANIN may be found in the following experiments, where the nuclei of blood corpuscles of aquatic animals were dyed by the latter's being placed in very dilute PYOKTANIN SOLUTIONS.—Gold-fish placed in a SOLUTION of 1 : 100,000, when killed after a day or two, show a number of the blood corpuscles with blue nuclei. A similar phenomenon is witnessed in frogs exposed to the action of PYOKTANIN SOLUTIONS. A vigorous carp was left for one hour in a PYOKTANIN SOLUTION of 1 : 50,000. Subsequent dissection, and microscopic examination of blood taken from the heart, showed the nuclei of the blood corpuscles dyed blue; while all the interior organs and the muscles had remained entirely unaffected by the dye,—with the exception of the heart, which showed a slight coloration.

3.—SUPERIORITY OF PYOKTANIN over Corrosive Sublimate, as a Medicinal Disinfectant.

"The development-arresting and germ-destroying properties of PYOKTANIN have been amply demonstrated by Dr. J. WORTMANN's and my Botanical and Bacteriological Experiments, partly reported in the first section of my former communication.

"The antiseptic effect of PYOKTANIN on pus-cocci is quite an extraordinary one. Concerning the standard test-object,—the anthrax bacilli,—JÄNICKE (144) has shown that an admixture of 1 part of BLUE PYOKTANIN to 1,000,000 of the nutritive fluid is sufficient to utterly prohibit the development of the bacilli;—a result which, according to KOCH, is produced by corrosive sublimate only at a strength of 1 : 330,000. Now, according to GEPPERT'S researches (145), corrosive sublimate does *not, in itself*, possess fully the antiseptic qualities commonly attributed to it, but they reside *largely in the methods* employed in the exhibition of the drug,—methods which have not been employed in my and Dr. WORTMANN'S experiments.—Even apart from these methodical differences, however, according to JÄNICKE'S and KOCH'S statements, the antiseptic strength of PYOKTANIN is more than three times as great as that of the strongest antiseptic heretofore known—to wit: of corrosive sublimate.

"To make this statement correct in all directions, I must add that, on pus-cocci (staphylococcus pyogenes aureus), corrosive sublimate has a stronger effect than it has on the anthrax bacillus. Comparative series of experiments which I have made in this direction showed that sublimate, in the proportion of 1 : 2,000,000 of the nutritive fluid, wholly arrests the development. I also made trials with agar-cultures,—using sublimate and PYOKTANIN in two parallel series, in proportions running from 1 : 1000 to 1 : 128,000; in these cultures, both drugs showed the same degree of power in impeding the development of cocci : solutions of 1 : 1000 to 1 : 2,000 arrest the development completely.

"However, according to GEPPERT, pathogenic organisms, sterilized by sublimate, *become toxic again* whenever the sublimate is withdrawn from them by a purely physical process,—which, according to the author named, is a very easy matter. In this respect, then, PYOKTANIN is vastly superior to corrosive sublimate, notwithstanding the equally strong development-arresting action of both on pus-cocci. This superiority of PYOKTANIN is based on the fact that it penetrates into

(144) "Ein Beitrag zur Kenntniss des Pyoktanin," in: *Fortschritte der Medicin*, 1890; No. 12.

(145) "Ueber desinficirende Mittel und Methoden," in: *Berliner Klinische Wochenschrift*, 1890; No. 11.

the plasma; while the sublimate evidently precipitates only on the enveloping membrane of the cell.

" The cell which has been long enough in contact with PYOKTANIN, to be deeply dyed and thereby to lose its faculty of proliferation or propagation, will not allow itself to be separated again from the coloring matter which it once holds.

" I have tried the experiment, for instance, of spreading cultures of pus-cocci on glass slips, then leaving them for but half a minute in contact with a PYOKTANIN SOLUTION of 1 : 200; and subsequently trying to extract the color with 2½-% alcohol. After the alcohol had been in contact with the culture for eight hours, I inspected the cocci again and found them just as deeply dyed as they had been before. But, if alcohol is not capable of extracting the coloring matter, then an aqueous or albuminous fluid (as they occur in the organism) must be still less capable of doing so.

4.—SUMMARY OF THE QUALITIES OF PYOKTANIN.

" Thus, from all the purely theoretical investigations and the botanical, bacteriological, physiological, and therapeutical experiments so far made, it appears clearly that:

" First,—PYOKTANIN *is an antiseptic surpassing all remedies of this kind heretofore known, in regard to both development-arresting and germ-destroying effect.* The two strongest antiseptics employed in medical practice are SUBLIMATE and IODOFORM. The bacteriological researches have shown BLUE PYOKTANIN to be about three times as strongly antiseptic toward anthrax bacilli as SUBLIMATE is, and to be quite as efficacious as SUBLIMATE toward the staphylococcus aureus; while the inefficacy of IODOFORM toward pus-cocci is a generally acknowledged fact.

" Second,—PYOKTANIN *is an absolutely non-toxic substance.* Herein it possesses a most desirable advantage over all the other antiseptic remedies; whose toxic effects are known to hold, generally, a pretty direct ratio to their anti-bacterial action.

" Third,—In consequence of this non-toxicity of PYOKTANIN, *it is a matter of indifference* in very many—indeed in most—cases, *whether somewhat weaker or stronger* SOLUTIONS, *or even the* PURE DRUG, *be employed.*

—(N. B.—This principle is good pre-eminently in the treatment of Wounds and Ulcers; but, of course,—as will appear from all that has been said before,—it can *not* apply to Ophthalmology!)

" Fourth,—PYOKTANIN *does not coagulate albumen*,—a negative quality of high value physiologically, which pertains to not a single one of the antiseptics heretofore known.

" Fifth,—PYOKTANIN *possesses an extremely high degree of diffusibility;* it permeates the interior of the eye like atropine, and acts similarly in other tissues.

5.—PRINCIPLES FOR PYOKTANIN METHODS, in Surgical Treatment.

A.—For Pyoktanin Powder.

" Should it prove impossible, indeed, to achieve practical success with a remedy qualified as this one is,—only two cases are supposable:

" *First*,—That it is impossible to develop the technique, pertaining to the exhibition of such a remedy, sufficiently to make it reach, in each case, the place infected by the pathogenic micro-organisms, so as to enable it fully to exercise its antiseptic action; or—

" *Second*,—The idea may be given up altogether, of obtaining more of a result with antiseptics than what has been obtained hitherto.

—" And this, truly, appears to be preciously little. For—apart from the fact that no remedy has so far been known, capable of dissipating a once established inflammation or suppuration (unless the not-always-infallible galvano-caustic treatment of ulcus serpens be an exception)—a great many surgeons and gynecologists nowadays take the position that, for the prevention of suppuration after operations, *no Antisepsis at all* is needed, but *merely Asepsis.*

" If, however, the view be adhered-to, that progress in this direction is still possible, the following positions will have to be considered:

" *Firstly*,—By theoretic investigations and by systematically conducted physiologic experiments, a substance has been discovered which—as PYOKTANIN indisputably does—*answers all the requirements*

to be primarily made of a truly serviceable antiseptic; to wit: Intensive anti-bacterial effect, non-toxicity, ready diffusibility, the quality of not coagulating albumen, inodorousness.

"*Secondly*,—From the foregoing fact results the problem, *to render feasible the exhibition of such a remedy in the most efficacious manner.*—This, then, is no longer a question of a new medicament, but of a newly-to-be-developed method.

"This problem, of course, is not an easy one. In order to solve it for any one case, it will be necessary to obtain a clear conception as to the *location* of the pathogenic organisms and as to the entire complication of *circumstances* under which they act, before the proper tactics for combating them can be formulated. As there are, however, still very many cases in which our knowledge regarding these points is very defective, the evident consequence will be the following:—Persons who disregard the above principle, and who, instead of taking pains to elicit the necessary information, go to work and employ the remedy *without any proper plan*, will most probably fail of obtaining the desired results. In most cases such persons, then, will be disposed to put the blame for their failure on the substance employed.

"I shall try to illustrate the above by a few examples:—

"Supposing a cumulus of penicillium spores, after having been dyed with PYOKTANIN, to be examined microscopically, the greater number of the spores will be found to have taken a deep coloration; and yet, however deep the coloration of the majority be, there will always be found a considerable sprinkling of uncolored ones among them, because the air contained in the cumulus has prevented the coloring matter from reaching them all. The cumulus thus treated, and then placed on gelatine, will at once germinate and form a culture.

"Now, exactly similar conditions might obtain, for instance, in dermatic diseases; and *if such* had been found to be the fact in any particular case, the postulate would follow that the diseased parts be anointed with alcohol before being pyoktaninized; or perhaps, that ALCOHOLIC SOLUTIONS be employed exclusively instead of AQUEOUS ones.

"Or, supposing a culture of mold-fungi to have been allowed to develop, and to have been then flooded with PYOKTANIN SOLUTION until they are evidently dyed,—if now the SOLUTION be decanted, small undyed cumuli of mycelium with conoido-convex tops will soon develop from the surface of the culture in spite of the previous superficial coloration.—If then PYKOTANIN SOLUTION be applied again, to these new cumuli, they will take hardly any or no color at all, because the SOLUTION is shed-off too readily by the convex surfaces.

"Conditions quite similar to those just described may arise, for instance, in superficial infiltrations of the cornea and in other similarly shaped affections. In cases of this nature, it will be readily seen, the technique of the application will have to be modified accordingly; be it by using the medicament in PENCIL form, or by giving such an inclination to the patient's head, as not to permit the antiseptic SOLUTION to run off without having properly performed its function of dyeing.

"Again, in many surgical ailments the exhibition of the antiseptic by subcutaneous injection into pus-infiltrated tissues may readily appear indicated. Here it appears that some surgeons, from my statement that a PYOKTANIN SOLUTION of 1 : 1000 surely destroys the pus-cocci, have drawn the singular conclusion that they only needed to inject a SOLUTION of about 1 : 1000—more or less—into pus-infiltrated parts, in order to reduce or cut short the suppuration.

"Now, surely enough, a SOLUTION of 1 : 1000 kills the pus-cocci—of course, when the latter are placed *in the* SOLUTION. But, when the SOLUTION is to be injected into a tissue, one should certainly conjecture in advance—apart from all the other obstacles arising against the proper diffusion of the medicament—about *what ratio of water* is contained by that tissue, and to what degree of dilution the injected SOLUTION would be reduced in consequence thereof; in order to be able properly to grade the required strength of the injection in accordance with these conditions. One ought furthermore to estimate approximatively the *quantity of diseased fluid* contained in the affected part; in order to be able to graduate the quantity of the injection accordingly.

One should also endeavor to form an approximate idea of *what percentage* of the injection can really *get into* the affected tissue-portion; that is, in other words, how much of it is likely to be lost directly by immediate diffusion into the surrounding healthy parts, and how much more may be lost indirectly by subsequent absorption,—thus reducing by just so much the intended antiseptic effect. Lastly, it should be borne in mind that, despite its great diffusibility, PYOKTANIN SOLUTION can never be expected to permeate a pus-infiltrated tissue-portion with the same ease, rapidity and thoroughness as it will a body of water or of simple serum. As has been repeatedly shown by physiological experiments, PYOKTANIN will permeate the living blood so thoroughly that it dyes even the nuclei of the blood-corpuscles. But a pus-infiltrated tissue-portion, on the other hand, may present utterly incalculable obstacles to the diffusion of the SOLUTION, by its containing clots of fibrin, and reticulations of this with mortified tissue, which in its turn will cause local and irregular agglomerations of the coloring matter.

" To illustrate the above, the following simple experiment may easily be repeated :

" Prepare a plug of crushed boiled potato and press it firmly into a glass tube open at both ends. Then set some PYOKTANIN SOLUTION filtering through it. On the following day the plug will still show a number of undyed particles.

" Another illustrative experiment was the following :

" I placed a glass rod in the axis of a test-tube and then half-filled the tube with sterilized prepared agar. After the agar had solidified, I withdrew the glass rod, and into the hollow left by it I planted pus-cocci.

" The tube was then placed into a thermostat; and on the following day the cocci had developed into very florid culture. The cylindrical hollow and the adjacent parts were densely populated with the cocci; a thick aggregation of the latter being at the bottom of the hollow.—Now, a PYOKTANIN SOLUTION of 1 : 1000 was poured into the tube. It dyed the upper $^{5}/_{6}$ths of the cylindrical cavity; the lower $^{1}/_{6}$th and the bottom remaining colorless.

"I thereupon repeated the experiment in the following two forms:—In the one I allowed the PYOKTANIN SOLUTION to remain in the tube for only five minutes; in the other I left it there for the day. In the latter case the SOLUTION and the color had penetrated to the bottom of the cavity after a few hours; in the former the fungus with its colonies was still undyed after twenty-four hours.

"In view of the difficulties thus shown as arising even in simple test-tube experiments, it is evident that a far more complicated set of circumstances, laying obstacles in the way of the antiseptic action, exists in inflamed and pus-infiltrated tissue. The surgeon, operating under such conditions *by subcutaneous injection*, may experience considerable difficulty in causing the injection to penetrate to all the spots containing pus; or, in estimating what quantity of injection is necessary for permeating the entire substance of the affected part; or, in calculating approximatively the obstacles likely to be encountered by the injected fluid. In addition hereto he will have to bear in mind that the SOLUTION, thus applied in the living body, *will not simply stand quietly* over the infected mass, gradually but steadily permeating it as in the test-tube; but that the overlying and surrounding tissues will absorb a large portion of it before it can reach every point of the diseased part.

"It is the careful observation and practical following of considerations like the above, which can alone lead to good results—such as have been obtained by me and by others wherever due circumspection was exercised in the manner of exhibition and application of the medicament. But, where the principle underlying these considerations is neglected, one ought not to be surprised at obtaining negative or poor results; which are then, correctly, *not* attributable to the *substance* employed, *but* to the ill-considered and defective *methods* according to which it was applied.

"From the principles above indicated, a few general rules may be derived for the PYOKTANIN METHOD IN SURGICAL TREATMENT:

"PYOKTANIN having been demonstrated an absolutely non-toxic substance (in external application), by animal experiments, in which wounds of 6–10 centimetres [2½–4 inches] in length were dusted

with PURE PYOKTANIN, *by grammes*, both in and between the traumatic surfaces, *without producing any disturbance of general health*, and with the result of healing the wounds, under scab-formation, *without tumefaction or inflammation;*—these qualities of the medicament ought to be utilized most extensively and intensively in the treatment of Wounds and Ulcers.—The further fact ought to be borne in mind that, when animals, experimented-upon in the manner described, are killed after a few days, and the wound is examined after the removal of the scab, *only the immediate neighborhood of the wound will be found dyed.* This shows that the PYOKTANIN POWDER used for dusting the wound had not been dissolved to a sufficent extent to allow any considerable quantity of it to percolate into the blood and the inner organs ; the quantity of fluids necessary for such solution not being present at or near the wounded part. Thus, even if the possibility of disturbing the functions of important internal organs *by the direct injection* of concentrated SOLUTIONS OF PYOKTANIN *into certain of the natural cavities*, as instanced in my first report ([146]),—were insisted-on,—this would surely not in anywise counter-indicate the use of PURE PYOKTANIN POWDER for wound treatment in unlimited quantity. This substance may, therefore, be dusted-on *at will*, without fear of any risk whatever.

" On the whole, the use of PYOKTANIN for the treatment of purulent processes in Surgery, ought to be similar to that of Iodoform.

" The principal object, then, should be, to bring the PYOKTANIN—in the shape of DRY POWDER—*into contact with all the points* where suppuration exists. Where the tissues are infiltrated with fluids, these will dissolve a certain portion of the medicament, proportionally to the amount of water present; which latter is probably always in a direct ratio to the intensity of the suppuration. The amount thus dissolved is likely to be sufficient for overcoming the existing physical obstacles to its diffusion.

" I have already given directions, in a former paper ([147]), for the specific use of the various PYOKTANIN PREPARATIONS at present in the

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(146) MERCK'S BULLETIN, 1890; p. 61.

(147) MERCK'S BULLETIN, 1890; pp. 69–70.

market; taking care to state that open wounds and ulcers, whenever the size of the traumatic surface perceptibly exceeds that of a silver dollar, should be treated only by the PURE POWDER,—the other preparations, as, for instance, PENCIL or 2-% DUSTING POWDER, being evidently too weak for the purpose.

" If, however, open wounds and ulcers require the application of PURE POWDER, it follows that *this form* of the medicament is all the more needed in cases where purulent processes of a grave nature are seated somewhere in difficultly accessible depths; as, for instance, in phlegmons, profound abscesses and the like. This class of cases it is, more especially, in which the above-outlined principles must be carefully considered.

" While such consideration has been notoriously neglected, so far, in some cliniques (as, for instance, at Tübingen),—others, and a large number of private practitioners, have exercised it intelligently and obtained correspondingly favorable results. Among those successful practitioners is Dr. VOIGT, who writes (148):

> ' PYOKTANIN PURE POWDER lightly dusted on with a brush yields the most brilliant effect; especially in acute suppurations: Carbuncles, Panaritia, Phlegmons, etc., the pain and the suppuration are cut short at once.'
>
> ' Only, *the operator must not be afraid of making deep incisions*, in order to enable the PYOKTANIN POWDER to penetrate everywhere. The blue zone can be traced from ½–2 millimetres [$^1/_{50}$–$^1/_{12}$ of an inch] in depth, into the tissue.'

" This latter statement will be seen to be in accordance with what I have said above, regarding fresh wounds in animal experiments.

" Dr. VOIGT says, further:

> ' In old malodorous crural ulcers the PYOKTANIN removed odor, pus, and pain inside of 6–8 hours. *The pus never returned.*'

" It will be seen that this experience coincides perfectly with the ones I recounted in my first report (149). In a case quoted by Prof. GARRÉ, where he failed to cut short an acute suppuration in the sacral region with phlegmonous infiltration of the cuticle, by injecting

(148) *Aerztlicher Central-Anzeiger*, 1890; No. 25.

(149) MERCK'S BULLETIN, 1890; pp. 65–66.

subcutaneously 8 cubic centimetres [2 drams] per diem of a $^1/_{10}$-% PYOKTANIN SOLUTION, it must appear evident that such a small quantity of the medicament could not accomplish the desired effect. The Professor was at last compelled to apply multiplex incisions and drainage. If he had made the multiplex incisions from the start and then strewn PURE PYOKTANIN POWDER into the wounds in large quantities,—that is, *by grammes*,—the suppuration would certainly have been cut short.

"In another case,—of ulcus cruris,—where the granulations refused to take color, this was evidently the inevitable result of the inefficient and irrational method adopted, which consisted in applying compresses saturated with PYOKTANIN SOLUTION. In such a process the bandage is bound to retain the coloring matter for the greater part; so that very little of it reaches the ulcer. In this case, likewise, PURE POWDER ought to have been strewn-on.

"There have been, also, instances of panaritia insufficiently sterilized, *and hence* insufficiently benefited. The fact of such suppurations yielding promptly in all instances where the PYOKTANIN PENCIL has been employed with proper energy and circumspection, has been absolutely confirmed through communications made to me by a number of practitioners (among them Dr. VOIGT, as quoted above).

—"Nevertheless, it would be just as difficult or impracticable to give minute directions for the proper procedure in every such case; as it would be, say, for the execution of a cataract operation. One operator does his work skilfully, and obtains good results; another slights it, and gets poor results. The difference often consists in quite undefinable seeming "trifles." Still there are examples, such as the ones just quoted, in which the error committed is easily traceable.

"A further instance of this kind is one where Dr. BRAUNSCHWEIG treated a cadaveric tubercle simply with PYOKTANIN PENCIL. (I do not remember, by the way, ever having lauded PYOKTANIN in cadaveric tubercles.) In such a case, the tubercle ought to be first split, and then sterilized thoroughly,—if possible, by introducing PURE PYOKTANIN POWDER into the incision.

B.—For Pyoktanin Solutions, etc.

"As for the application of SOLUTIONS OF PYOKTANIN, on the other hand, the results obtained by FESSLER in the Surgical Clinique of Munich University ([150]) have shown that it will do very good service *when properly executed.* This is where a systematic development of the applicable methods will be of great consequence. It is of the first importance to provide for the admission of *a sufficient quantity* of the SOLUTION into the diseased tissue-portion. In estimating the quantity required herefor, it should be remembered that not only the diseased parts, but also the surrounding healthy tissues or their fluids, will absorb the PYOKTANIN with avidity and will cause it rapidly to diffuse further into the interior. The most characteristic circumstance about this is, that the healthy tissues, in this process of absorption and diffusion, occasion *a greater loss* of the coloring matter than the diseased parts do; the latter being more inclined to accumulate and to retain the colorific substance, as soon as the first physical obstacles of its entrance are once overcome. These obstacles being considerable in most cases, the necessity follows of applying as large quantities of the medicament as practicable.

"Among the methodic forms suggested by the necessity here mentioned, may be such, for instance, as *permanent baths* in very dilute SOLUTIONS.—It follows, from the same considerations, that the washing-out of cavities will have to be repeated *with some frequency*, if the nature of the case allows of the exhibition of the remedy only in the form of SOLUTION.—Again, in purulent fistulous canals and the like, a systematic perfection of the PYOKTANIN method may have occasion to call for the use of *antrophores* (soluble bougies) prepared with concentrated SOLUTIONS; or for *fusible pencils*, made with cacao-butter; and for other such special preparations.

C.—General Concluding Remarks on Methods.

"From all the foregoing, it will be evident that it is *not simply a new remedy* that is under discussion, but a new method, used in the

(150) *Münchener Medizinische Wochenschrift*, 1890; No. 25.—[*See* MERCK'S BULLETIN, 1890; p. 101.]

status nascendi. Therefore, whoever attempts experimenting with PYOKTANIN in Surgical practice in any new line, should not go to work empirically, but should try to proceed only on the basis of a proper understanding of the pertinent bacteriological and physiological relations; lest, otherwise, he fail of success. If my previous communications have raised expectations of a wonderful specific which need only be superficially and carelessly daubed on a diseased surface in order to procure immediate and stupendous curative effects,—I exceedingly regret such misunderstanding, for I never meant to convey any such expectation. I have indeed reported cases of remarkably rapid cure; and these reports were entirely truthful. But, I did not tell of those instances in order to imply that every similarly characterized case might now at once be cured with like remarkable success,—*without further study;* I told of them only to show how this medicament acts when properly employed.

"In the cases formerly described by me, such employment was simple and easy; to devise successful modes of application *for all sorts of cases* is a matter of newly-to-be-developed methods. *The possibility* of the construction of such methods, however, is evidenced by the cited instances themselves.

"As far as Surgery is concerned, I—not being a specialist in this branch—am obliged to content myself with the above remarks; which, nevertheless, ought to suffice for indicating the directions in which further successful experiments with Surgical uses of PYOKTANIN may be made. *My researches have demonstrated that suppuration can be cut short by bringing PYOKTANIN into intimate contact with the suppurating tissues.*—To devise efficacious means for bringing it into such contact, for all or for most of the possible cases, *can not be my task alone.* The fulfilment of this task presupposes the conjoined labors of many investigators. The expectation which I did mean to convey by my communications so far, is simply that a task such as outlined is realizable.

—"I have only to add,—as being germane to the subject-matter of this section,—that, since my First Report, I have had quite a number of personal surgical experiences of a very favorable nature

regarding the sterilization of ulcers, furuncles, ostempyesis, etc., with PYOKTANIN.

6.—PYOKTANIN SUCCESSFUL in Dermic, Venereal, Ophthalmologic, Veterinary, and Piscicultural Uses.

"As for the use of PYOKTANIN in Dermic affections, favorable reports have already been had on eczemas. VON HOFMANN had splendid results in that direction.

"In Venereal troubles, PYOKTANIN has been tested by Prof. PETERSEN ([151]), who obtained excellent results, and who has also substituted PYOKTANIN altogether for iodoform in his medical practice.

"PETERSEN likewise confirms the beneficial action of PYOKTANIN in Eye diseases: as,—conjunctivitis, keratitis, iridocyclitis.

"In Veterinary practice, PYOKTANIN appears to have given very good results. In eczema epizoötica (foot-and-mouth disease), Dr. MERCK, of Darmstadt, had fine effects from it. On painting the affected parts with SOLUTION of 1 : 500, no more morbid symptoms were noticeable after 24 hours.

"I myself have had beautiful results from PYOTANIN in the saprolegnia disease of Fishes,—details of which, however, do not belong in this report.

7.—CAUTIONARY REMARKS AND ADDITIONAL DIRECTIONS on the Various Pyoktanin Preparations.

A.—SOLUTIONS.

"A general outline of "INDICATIONS AND DIRECTIONS FOR USE OF PYOKTANIN PREPARATIONS" has been given by me in a previous communication ([152]).

"I have here to add the following:

"SOLUTIONS OF PYOKTANIN *will precipitate* after some days under the influence of *light*. They should, therefore, always be kept in dark jars, and, for additional caution, should be *renewed* about every week. On instilling a SOLUTION OF PYOKTANIN into the eye, any decrease in the

(151) *St. Petersburger Medizinische Wochenschrift*, 1890; No. 27, etc.

(152) MERCK'S BULLETIN, 1890; pp. 69–70.

colorific power of the SOLUTION will be readily detected; and this shows that the SOLUTION has begun to precipitate. A neglect in paying attention to this circumstance may easily become the cause of failure, most especially in Ophthalmologic applications.

"In Ophthalmologic mild affections, as in conjunctival catarrhs not strongly purulent, YELLOW PYOKTANIN is preferable from the fact of its exercising a very agreeable cooling effect,—as the patients have so far unanimously stated.—According to the nature of each case, the instillation may have to be made once or several times per day. SOLUTIONS showing signs of precipitation *must be filtered* before being used in the eye.

B.—PENCILS.

"In simple skin abrasions, chafes, etc., the YELLOW PYOKTANIN IN LARGE PENCILS will suffice; but for suppurating wounds, ulcers, etc., the BLUE PYOKTANIN is preferable on account of its far greater antiseptic strength.

"In the use of the SMALL PENCILS for the sterilization of corneal ulcers, etc., care should also be taken to ascertain whether one application has sufficed to do the work, or whether repetitions are necessary.

8.—NEW FORMS OF PYOKTANIN PREPARATIONS.

"At my request, for the purpose of surgical experiments, the Chemical Manufactory of E. MERCK has made the following additional forms of PYOKTANIN PREPARATIONS:

A.—Soluble Pencils,—corresponding to the well-known Iodoform Pencils;

B.—Bougies;

C.—Antrophores;—

whose well-considered use will, I have no doubt, develop good results if systematically followed up."

N. B.—PROF. STILLING'S THIRD REPORT touching the use of PYOKTANIN *in his own specialty* of OPHTHALMOLOGY will appear *in the next number* of MERCK'S BULLETIN.

OTHER NEW REPORTS ON PYOKTANIN ([153]).

KELLERER, of Holzkirchen, describes ([154]) two cases of croup, in which a high degree of stenosis had already set in. He applied Inhalations of PYOKTANIN SOLUTION 1 : 2000, and had cause to be surprised at the exceedingly rapid recovery. As early as the following day, the respiratory difficulty was gone. He therefore recommends this substance for further experiments in similar cases.

NOGUÈS ([155]) has shown, by experiments on the eyes of rabbits and guinea-pigs, that SOLUTIONS of both YELLOW and BLUE PYOKTANIN, 1 : 1000, are very well borne,—not producing the slightest irritation of the conjunctiva. In blennorrheas of adults and of children, with gonococci in the purulent secretion, LOTIONS of 1 : 1000–1 : 2000 were of excellent effect. In keratitis, the medicament did very well indeed; while it was less efficacious in granulations.

Two other cases, of a characteristic nature, are specially detailed by the same author.

One was that of a woman, aged 42, who for three days had suffered from a very violent phlegmon of the lacrymal duct with an enormous erysipelatous swelling of the cheeks. The sac was opened and PYOKTANIN was applied; the purulent secretion very rapidly diminished and, although the nasal duct was not open, only an unimportant fistula remained.

The other case was in a man of 83 years: operation of senile cataract. On the day thereafter, violent pain set in; the bandage was raised, disclosing edema of the upper lid, with rubor of the conjunctiva, and symptoms of incipient iritis plastica. A single application of a few drops of PYOKTANIN SOLUTION 1 : 1000 to the conjunctiva sufficed to cut short all further progress of the symptoms and secure a favorable development.

SCHEINMANN ([156]) lauds the application of PYOKTANIN to tubercular ulcerations in the larynx and the nose, where, in his experience, it appeared absolutely unirritating, and induced rapid cicatrization.

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(153) *See* MERCK'S BULLETIN, 1890; pp. 99–102.

(154) *Münchener Medizinische Wochenschrift*, 1890; No. 32.

(155) *Médecine Moderne*, 1890; No. 35.

(156) *Berliner Klinische Wochenschrift*, 1890; No. 53.

His method ([157]) was the following:—The bulb of a flexible copper probe, having been heated, is dipped into PURE PYOKTANIN POWDER. If the bulb had the proper degree of heat, a firmly cohesive stratum of fused PYOKTANIN will be found covering it, to which a quantity of the POWDER will adhere. The probe thus prepared is introduced into the larynx or the nose, after the parts have been abundantly cocainized; and then the PYOKTANINIZED bulb is energetically rubbed into the ulcerous fundus. Thus, a strictly localized action is rendered possible. (The probe, after having done its work, is held over a flame until the PYOKTANIN is charred, thus losing its colorific quality.)

The curative tendency is a striking one even after the first application,—the secretion appearing to be "spirited away"; and after a short time the question arises whether there is still an ulcerated condition or already an incipient cicatrix. The reaction of the surfaces treated with the PYOKTANIN is equal to zero. Any pain that may exist within the next twenty-four hours is not augmented by the operations, but often considerably reduced.

BRANDENBERG ([158]) communicates satisfactory results from PYOKTANIN treatment in seven cases; among them, the following:

A crural ulcer, measuring 12 x 7 centimetres [5 x 3 inches], with four smaller ulcers about it, required 19 days for complete cure. The smaller ulcers took from 1–3 days.

Another crural ulcer, of 2 x 1½ centimetres surface, and about 5 millimetres [$^1/_5$ inch] deep, was cured in 10 days.

A profusely suppurating cephalic wound, which had been taken into treatment three weeks after its occurrence, and which contained two fistulas reaching down to the bare bone, was at first treated with iodoform; under which treatment, however, the secretion remained very profuse. Then PYOKTANIN was substituted for the iodoform. After the first application, the secretion was markedly reduced; the second and third applications together remained on for 4 days; the secretion then entirely ceased; after the fourth application the lesion was cured.

(157) See the question of "METHODS," as discussed in PROF. STILLING'S Second Report,—pages *116-126 of this number.*

(158) *Korrespondenzblatt für Schweizer Aerzte*, 1890; No. 17.

An ulcus molle was cured in 4 days.

An evacuated tuberculous knee-joint and an evacuated diseased area in the tibia, after four weeks' iodoform treatment, exhibited such profuse secretion that the bandages had to be renewed every 1 or 2 days. Hereupon, the cavity was filled with a $^1/_{10}$-% PYOKTANIN preparation and closed with a gauze plug. The result was a considerable reduction of the secretion; so that the bandages were allowed to remain from 4–5 days each.

The correspondent therefore lauds PYOKTANIN as desirable in crural ulcers and in strongly purulent lesions of various kinds.

Dr. W. NETTER, of San Antonio, Texas ([159]), reports two cases of otitis media purulenta, consequent on measles and scarlatina, in which, after every other means had failed, he tried PYOKTANIN INJECTION.—At the date of the report, several weeks had elapsed without any discharge.

GATHERED FORMULAS.

INDEPENDENT of the TEXT-MATTER.

23.—COCAINE in Difficult Teething ([160]).

COCAINE HYDROCHLORATE	0.1 gramme [1½ grains].
Syrup	10 grammes [2 fl. drams].
Tincture Crocus	*twenty drops.*

To be used as an EMBROCATION *for the Painful Gums, several times per day.*

---

24 and 25.—SOZO-IODOLIC OINTMENTS in Slight Cases of Chilblains ([161]).

SOZO-IODOLE OF ZINC	*1 part by weight.*
Vaseline	*10 parts by weight.*

— Or: —

SOZO-IODOLE OF ZINC	*2 parts by weight.*
Simple Ointment	*25 parts by weight.*

---

(159) As quoted in *Medical Standard*, 1890; October.

(160) *Deutsche Medizinische Wochenschrift*, 1889; p. 96.

(161) *Pharmazeutische Centralhalle*, 1890; p. 28.

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" OINTMENT, 2% (or more);
" PENCILS, *large* and *small*;
" TABLETS, and DIVIDED POWDERS } (*for Solutions*);
" SURGICAL DRESSING-MATERIALS, 1/10%;

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PYOKTANIN FOR OPHTHALMOLOGY.

—(*PROF. STILLING'S THIRD REPORT ON PYOKTANIN.*)—

[For First and Second Reports, See June and October Nos.]

I.—CAUTION AS TO MODES OF PROCEDURE.

"In regard to Ophthalmology, being my own specialty, I can of course recount a greater number of experiences than in the Surgical applications discussed in my last communication (162). But, nevertheless, the matter is still in status nascendi even in that direction.

"Even in this comparatively circumscribed branch of therapeutics, it is not easily possible for a single investigator—especially within such a brief time after the first publication on the matter (163)—to devise the most eligible manner of exhibiting and applying the new remedy in each particular form of eye-disease. The realization of this object, likewise, requires the conjoined labor of many.

"The first thing properly to be done, in this branch of therapeutics as in the others, will be, to follow the general leading principle previously established; that is, to ascertain in each individual case, *whether and in what manner* the use of PYOKTANIN appears justifiable and desirable for such particular case, on the basis of the lights previously gained as to the action of the medicament; and then to devise the most efficacious means of effecting the application.

"Non-attention to this principle has, of course, occasioned failure with some investigators in the Ophthalmological field just as it has in the Surgical.—I deem it very instructive to discuss this point in the first place; for the correct way of doing a thing may very often be learned by reviewing the incorrect way in which it has been done.

"The most notable example of the incorrect methods alluded to, is shown in the manner in which keratitis parenchymatosa was treated in A. GRÄFE'S Clinique.—

"In this disease, the pathogenic organisms are seated in the depth of the corneal tissue, while the epithelium is intact; and, the same as with a normal cornea, even the topmost layer will consist of living cells, because

(162) MERCK'S BULLETIN, 1890; p. 111, etc.

(163) MERCK'S BULLETIN, 1890; pp. 60, 62, etc.

the dead ones are constantly removed by the motion of the lids. Hence —as has been shown before (164)—the normal cornea allows PYOKTANIN to percolate directly into the anterior chamber, quite the same as atropine or eserine. Therefore, the reliance of the physician in this case must be placed on the *diffusibility* of the medicament. That is, he should take into account that the PYOKTANIN, in its passage through the cornea, will necessarily encounter what vegetable cells luxuriate in the corneal tissue; and that it will be more or less arrested and accumulated by them; and further, that such accumulation will take place *in a higher degree* in those vegetable cells than in the corneal tissue, because they are more isolated from one another than the cells of a continuous organic tissue in the human body.

"The kind of effect above indicated can, of course, only be secured by the use of SOLUTIONS.—In GRÄFE'S Clinique, on the contrary, as stated, the cornea was first painted with a BLUE PYOKTANIN PENCIL; and then, 'in order to allow a quantity of PYOKTANIN to be deposited,' the PENCIL was left for a time *buried in the conjunctiva.*

"The BLUE PYOKTANIN thus 'deposited' in the conjunctiva was naturally retained and accumulated by the upper stratum of the conjunctival epithelium; while a part of it may have penetrated the intercellular connective substance and thus gone into the deeper strata. But, at any rate, the colored conjunctival epithelium being affected to the strongest degree possible with this medicament by its long-continued contact with the PENCIL, could not escape desquamation; and this cannot take place altogether without irritation. But this is not all. The corneal epithelium, likewise, when treated with the pure substance, must of course be entirely devitalized in the upper strata,—the devitalized cells then accumulating the coloring matter and thus preventing its further diffusion into the corneal substance itself. No wonder, then, that no success was attained under these circumstances.

2.—BLEPHARITIS METHODS.

"Very correct results can be obtained by 2-% OINTMENT or by the PENCIL, with which the hair follicles should be thoroughly touched up. The YELLOW PYOKTANIN may be judged preferable herein, on account of its

(164) MERCK'S BULLETIN, 1890; pp. 60 and 64.

less apparent colorific effect.—Since adopting the PYOKTANIN treatment, I have been in the habit of curing even quite extensive blepharitides inside of a few days. Naturally, however, the PYOKTANIN treatment cannot act as a safe-guard against relapses when the patients—as but too frequently happens—live in conditions producing repeated infections.

3.—CONJUNCTIVITIS METHODS.

"In very pronounced purulent forms I have met with the best of success. Instillations of BLUE PYOKTANIN SOLUTION, 1:1000, or—as the case might be—2-% DUSTING POWDER of YELLOW or BLUE PYOKTANIN, often produced the most excellent effects in the very severest cases,—the suppuration being cut short so rapidly and thoroughly as to make the eye *well on the following day.*

"In the common acute, subacute, and chronic forms of conjunctivitis, I attained better results with SOLUTIONS of YELLOW PYOKTANIN, 1:1000, than with any of the other usual remedies,—although not with quite such extreme rapidity as above cited for the purulent forms.

"In the so-called tumescent catarrhs,—that is, inflammations of the conjunctiva with high swelling of the sub-conjunctival tissue and lids, but without any strong purulent secretion,—I have not had any success. —When the medicament is not found, in a given case, to cause some improvement immediately, this is proof—in acute cases, at least—that the substance was not in a position to reach and destroy the pathogenic organisms; and then should be abandoned.

"The all-important point, in conjunctival inflammations, is the *location* of the pathogenic organisms. If they are situated on the surface, it will be quite well possible to kill them by insisting on the distribution of the medicament over the entire extent of the conjunctival sac. To attain this, a suitable inclination must be given to the patient's head; and care must be had that the instilled SOLUTION is not at once ejected from the eye by contractions of the lids. If, on the other hand, the diseased germs are seated in the sub-conjunctival tissue, the epithelial stratum will first absorb the coloring matter and then suffer desquamation; whereupon the cocci may luxuriate on the exposed mucous membrane all the more vigorously, receiving more abundant supply of nutritive fluid.

"In cases of the latter class, it is probably a simple question of technical development, whether the cocci can be reached and killed, or not. The state of bacteriological science in regard to these processes being still very backward at this moment, its development will have to be waited for.—(Similar conditions, by-the-way, seem to prevail in regard to the urethra.)

4.—BLENORRHEA NEONATORUM.

"Of this form of disease, I regret to say only two cases have, in all this time, occurred in my Clinique; both of which were treated, in my absence, by my assistant Dr. J. MEYER, with 2-% DUSTING POWDER of BLUE PYOKTANIN.—In the first of these cases, the purulence disappeared between the third and fourth day, and the child was cured. The second case, however, had a bad course; one cornea being perforated as early as on the sixth day, the other being already clouded. An older colleague, hereupon taken into consultation, then introduced the customary silver-nitrate treatment; but without any success whatever: the other cornea was likewise perforated and the suppuration was not reduced.—On returning from my absence, I found a condition of heavy suppuration, but without tumefaction or hyperemia; neither of which had occurred at any time in this case,—which I have always found to be an unfavorable sign. I now introduced PURE BLUE PYOKTANIN POWDER; whereupon the suppuration decreased, and enough of the eyes was saved to enable iridectomy to be taken into consideration.

"The question may arise whether, in a case like this—embracing an evidently very deleterious process, induced by infection from the mother, who was affected with vaginal gonorrhea,—it would not have been preferable to employ the PURE POWDER *from the start*. I, for my part, would not have any hesitation in using it in such desperate cases. *The general rule should be established, however, that the treatment is not to be continued whenever the first application does not produce some improvement;* or if even an irritation should have taken place in consequence of the desquamation of dyed and thus devitalized epithelium. When no improvement takes place, it is evident that the pathogenic organisms, from some cause or other, were not reached by the antiseptic. The cocci in blenorrhea neonatorum

being found, according to recent discoveries, not only in the sub-conjunctival tissue but also in the cornea and in the iris,—the explanation of the cause of failure, in cases like that described, is self-evident.

5.—BLENORRHEA OF ADULTS, etc.

"In ordinary blenorrhea, on the contrary, I have had good results; and the like has been reported by others. Possibly, the true method for such cases is yet to be discovered. Thus, in grave cases of blenorrhea, croupous conjunctivitis, etc., the modification might suggest itself, of scarifying the conjunctiva and introducing strong SOLUTIONS or PURE POWDER into the incisions. Experiments in that direction, of course, should at first be instituted in cases where no more harm can be done.

6.—TRACHOMATOUS AND SIMILAR AFFECTIONS.

"I have had some very fine results in granular troubles; although I must say that there were no very grave cases among them,—these being rare occurrences in our district. I touched the granulations with the PENCIL, and found that they imbibed the color very rapidly. I ascertained, furthermore, that the PYOKTANIN thus applied does not cause pain or blepharo-spasm, as silver nitrate or copper sulphate do; and the course of the entire case is a decidedly briefer one than under the other modes of treatment.

"If, however, such cases are complicated by intensive tumescence and hyperemia, or even by infiltration of the cornea, there can be no wonder, after the above, at an aggravation of the condition by improper treatment with the PENCIL. As to the proper mode of procedure in such cases, I cannot, at this moment, say anything positive as yet; especially as the pathological anatomy and the bacteriological conditions of these affections are still very much in the dark. Where such a state of things is given from the start, the first application of the remedy should be very cautiously made with DILUTE SOLUTION; if no improvement be obtained hereby, it is better to leave the medicament alone until the unknown anatomical and pathological relations have been cleared up; instead of working at random, empirically, without insight into those relations,—

and then attributing whatever failures may result, to the remedy instead of the mode of treatment.

7.—PTERYGIA.

"Before continuing, I should state that I have, in several cases, succeeded by consistent, long-continued treatment with BLUE PYOKTANIN PENCIL, in procuring the re-absorption of pterygia of long standing, which otherwise would have been removable only by operation.

"I do not mean hereby to demonstrate these affections as being of a directly bacterial nature; as PYOKTANIN devitalizes animal cells likewise.

8.—EPITHELIOMA, etc.

"I also succeeded, in one case, in healing by PYOKTANIN an extensive epithelial carcinoma (ulcus rodens), which, beginning in the middle of the bridge of the nose, had destroyed the anterior wall of the lachrymal sac and half of the upper lid. In this case, the first treatment had been made with nitrate of silver; which was followed on the next day by an intensive suppuration under the scab produced by the caustic. Instead of now proceeding with thermo-cautery, which I should formerly have done, I made an attempt with PYOKTANIN,—sterilizing with one of the large pencils as deeply as possible, and then dusting some of the PURE POWDER on; which I repeated several times. A firm covering of PYOKTANIN was formed, which could not be removed readily, but which dropped off after a few weeks, leaving a smooth cicatrix, of course with strong contraction of the lid. The correctness of the original diagnose was proven by the fact that in the meantime the eye had to be enucleated, because a sarcoma had developed in the interior.

"I have communicated this case only in order to show what effect PYOKTANIN, under particularly favorable circumstances, is able to produce even in such cases; but not with any intention of showing that I discovered a remedy for carcinoma. On the contrary, in a second case, presenting a much more favorable appearance at the start, the remedy failed. The ailment here was a small undeveloped tumor in the region of the lachrymal sac, but the hemorrhage was so violent that no scab could be formed by the PYOKTANIN; for this remedy does not act as a styptic, be-

cause it does not coagulate albumen; and the result was, that the thermo-cautery had to be applied.

9.—THE NON-IRRITANT QUALITY OF PYOKTANIN.

"I should still mention that my statement regarding the local non-irritant quality of PYOKTANIN, even on the conjunctiva, has been confirmed by several authors.—PEDRAZZOLI, in a special treatise on this group of antiseptics, published this year at Pavia, states that eyes even in the highest state of irritation bear the BLUE PYOKTANIN perfectly well.—ADOLF WEBER has, as he informed me by letter, 'employed both the 2-% YELLOW PYOKTANIN POWDER and the $^1/_{10}$-% BLUE PYOKTANIN SOLUTION daily, for weeks, and had occasion, in these applications, to observe the great tolerance of the surface treated for this remedy.'—Likewise, VON HOFMANN, on instilling one drop of solution every two hours for weeks, witnessed no irritation whatever; and he treated over one hundred cases without witnessing any such.—Again, Dr. BRÜCKNER, of Darmstadt, quite some time ago, has recorded as many as one hundred and odd cases of PYOKTANIN treatment, not embracing any notable instance of irritation. These colleagues have authorized me to publish these observations of theirs, as well as others that they may still make.

10.—CORNEAL AFFECTIONS.

"As for this class of eye-trouble, I believe myself justified, by my recent as well as my former numerous experiences herein, in claiming that the PYOKTANIN treatment in general supersedes every other known kind of treatment. I have seen very grave forms healed with surprising rapidity, and in my own clinique I am using nothing else in corneal ailments. I do not intend, however, to be understood as if the only thing that has to be done in severe cases of keratitis is, to instil a SOLUTION OF PYOKTANIN, or to touch an ulcer with the PYOKTANIN PENCIL. In this class of cases especially, the leading principles previously noted must be observed all the more carefully; inasmuch as there is opportunity, here, for committing the gravest errors on the one hand, or for obtaining the finest results on the other.

II.—SUGGESTIONS FOR CORNEAL METHODS AND AUXILIARIES.

A.—General Cautions.

"In each individual case (but most especially in corneal affections, where the observation is comparatively easy to make, the first and principal aim must be, to find a way, if possible, of *carrying the medicament to all the points* of the tissue where pus-cocci are located. In flat and exposed ulcerations, this is an easy matter, which can often be disposed of simply by the use of SOLUTIONS. With somewhat deeper-seated processes, very often the PENCIL will suffice. If, however, there is a very deep abscess,—say nearly down to the membrana descemetii;—or if it is not readily accessible from without,—as for instance in peripheral circular abscesses,—the question will arise, whether or not it be necessary to prepare the way for the pus-destroying substance by punctures and incisions. . . .

"In saying that PYOKTANIN by far surpasses every other remedy in corneal troubles, I did not by any means intend to supersede the operative aids, as some authors have evidently believed. And where, in my first communication (165), I distinctly said that, for deeply-seated purulent developments, the technique in detail would still have to be found out,—it is evident that many instances of corneal ulcers would come under that statement.

"Thus, if, after a sterilization by PYOKTANIN—no matter in what form—no improvement, or even an aggravation, of the condition be witnessed on the following day,—this is evidence that the antiseptic was not carried in sufficient quantity to all the points where needed; and thence follows the necessity of working out special measures for effecting this. Possibly a longitudinal incision will have to be made, and immediately sterilized by the PENCIL or SOLUTION; or perhaps the diseased tissue will require multiplex punctures to be made with a hollow needle dipped into a concentrated SOLUTION. Of course, I am not in a position to give rules fitting each possible case; because, in the short time elapsed since the discovery of PYOKTANIN, I have not seen all the cases that are possible. No single individual could do this. But I may state that, hitherto, the so-

(165) MERCK'S BULLETIN, 1890; p. 67.

LUTION and PENCIL forms have sufficed in all that I have done,—without a single failure, but with many very good and rapid cures.

B.—Some Encouraging Examples of Ulcers.

"In the most recent period I have indeed cured some most grave cases with surprising success. In one of these (that of an old lady), there was a severe ulcus serpens, which had already been treated for weeks with other medicaments. The cornea was for the greatest part infiltrated with pus; its surface being thus transformed into a large open ulcer, and the anterior chamber being filled with pus. A single, carefully-conducted sterilization with BLUE PYOKTANIN PENCIL cut-short the suppuration, which never returned. I touched up the place a few times more, and thereafter instilled BLUE PYOKTANIN SOLUTION of 1:1000 for some days. After a fortnight, the cicatrization was almost perfect, showing a leucoma of moderate size, with a great deal of transparent peripheral cornea. Perforation did not occur.

"In another case (of a young girl), there was a peripheral circular ulcer with intensive infiltration of pus,—embracing at least one-third of the circumference of the cornea. A solitary careful sterilization with the PYOKTANIN PENCIL sufficed to cut-short the suppuration; in a few days, reparation was well under way.

C.—Corroborative Testimony by Other Authors.

"I refrain from quoting further instances of my own experience, as my statements hereanent have received striking and ample confirmation from other quarters. Thus PEDRAZZOLI (as quoted before), describes a case of grave traumatic keratitis, characterized as follows:

> 'Hypopyon, most intensive irritation, entropion spasmodicum, inexpugnable by the ordinary remedies; and in which case the operation of SAEMISCH had already been attempted without success.
>
> 'After a few instillations of BLUE PYOKTANIN 1:1000, I witnessed such an extraordinary improvement, that this eye, almost irrevocably doomed to panophthalmia, retained its normal volume, with a leucoma somewhat flattened in the centre and an intact corneal tissue at the periphery.'

"A. GRÄFE has caused a case of panophthalmitis to be published, in which the inflammation was visibly arrested by a mere instillation of a

1:1000 SOLUTION. What he should have done, was, to make a small puncture into the sclera and to introduce a PENCIL. I, at least, have always succeeded in stopping panophthalmitis, produced in rabbits by inoculation. In one case the eye even retained its form; the vitreous humor being found transformed, on subsequent dissection, into a dense fibrous tissue. The suggestion is evidently given by this experience, to proceed in this or in a similar manner in purulent cyclitis and the like,—possibly by *injections* of 1-% SOLUTIONS.

"Carl (166), who tried the effect of colorific substances, somewhat similar to BLUE PYOKTANIN, on eye-troubles as early as 1887, was frightened from a continuance of his experiments by an unfavorable result in ulcus serpens; in regard to which he utters the hypothesis, that a sort of catalytic action of the coloring matter might have caused the ill result. If that author, instead of at once plunging into therapeutic experiments with a medicament unknown to him, had first studied its physiological effects, he would easily have found that such an effect as the one supposed by him is impossible. The bad result in the case quoted by him must be attributed to insufficient sterilization by means of a painter's brush, to a continued proliferation of the cocci in the deep regions, and to a migration of some of them into the peripheral lymphatic canaliculi. Had he made a flat puncture into the periphery with a lancet, and then instilled PYOKTANIN SOLUTION, he might have saved the eye.

"Moveover, Dr. CARL had no pure substances at his command; for those now known as PYOKTANIN did not exist in their present form until E. MERCK, of Darmstadt, produced them at my suggestion.

"VON HOFMANN saw infected lesions of the cornea, with hypopyon, healed from one day to the next, especially when he could succeed in imparting an intensively blue coloration to the wound. (VON HOFMANN, so far, had used the PYOKTANIN only in SOLUTION.)

"Prof. GOLTZ has authorized me to publish the following observations of his in this connection:—After cerebral operations on dogs, there are frequently inflammations of the conjunctiva, and more especially yet of the cornea, which often produce perforation, and thus ruin the eye. GOLTZ has, in various cases, cut-short these inflammations in their incipient stage,

(166) *Fortschritte der Medicin*, 1890; May.

most successfully, and cured them in a few days, by applications of BLUE PYOKTANIN SOLUTION 1:1000.

D.—Uses of Pyoktanin Ointment.

"In various forms of keratitis,—as, f. i., in superficial marginal infiltration, in fascicular keratitis, etc.,—the TWO-PER-CENT. OINTMENT may be used. In external affections it may be made stronger: up to 10%. PYOKTANIN OINTMENT has, on the whole, *the same indications* as PAGENSTECHER'S ointment; but, according to my experience, it *acts many times more rapidly*.

E.—Antalgic Effects of Pyoktanin.

"A decided anodyne action of PYOKTANIN *in the nose* has been very strikingly established by BRESGEN (167).

"The same is true *for the eye*. In consequence hereof, PYOKTANIN frequently procures a very sudden cessation of *blepharo-spasm* and of *photophobia*. I have not witnessed similarly good results in these directions from any other mode of therapy,—especially in scrofulous children. (This anodyne effect seems to be due to a dyeing of the nerve terminations by the medicament.)

F.—Parenchymatous Keratitis.

"My observations hereon, as previously published (168), which may have been received with some doubts at first, have been fully confirmed by PEDRAZZOLI'S researches.—VON HOFMANN likewise witnessed the described clearing-up in keratitis parenchymatosa under PYOKTANIN treatment.

"As I have shown that the *intact* cornea takes no coloration from PYOKTANIN; and as the treatment of parenchymatous keratitis will have to be simply guided by the consideration that the more isolated cell imbedded in the animal tissue must retain the coloring matter more tenaciously, —the question will arise whether *in obstinate cases*, the cornea should not be lightly pricked with an iris-lancet before instilling PYOKTANIN SOLUTION; because a cornea whose epithelium is injured will take coloration from

(167) *Deutsche Medizinische Wochenschrift*, 1890; No. 24.

(168) MERCK'S BULLETIN, 1890; p. 63.

PYOKTANIN, even though but for a brief time.—Thus far, I have not had an opportunity to try this aid; but, on occasion, I should hardly hesitate to employ it.

12.—IRITIS, etc.

A.—Confirmations of Former Report.

" Now, as for the *interior diseases of the eye*, including the various forms of iritis,—my former observations hereon ([169]), strange as they appeared to myself and to others at the time, have likewise been corroborated, in communications made to me by distinguished specialist colleagues.

" ADOLPH WEBER informs me as follows:

> 'I am firmly convinced, having witnessed good action by PYOKTANIN in *iritis serosa*, with squamous and imbricated formations on the interior surface of the cornea, and grayish diffuse opacities in the forward part of the vitreous chamber. Herein, both kinds of PYOKTANIN — the YELLOW and the BLUE — have evidently *done better* than all the other remedies, internal or external, applied by me.'

" VON HOFMANN had a severe case of iritis serosa, where the anterior chamber was totally invaded and filled up, and rinds covered up the iris so as to exclude it from view entirely. Under PYOKTANIN treatment, these rinds, *which had existed for one year and a half*, disappeared, so that the texture of the iris became again perfectly discernible. Duration of treatment: 2 months; daily, 2 drops of SOLUTION, alternately BLUE and YELLOW.

B.—Proper Interpretation of the Instances Cited.

" It is a matter of course, I must again insist, that not every experimenter with PYOKTANIN, so far, has had the like results. I take occasion here, once more, to declare that these instances I have cited *are not meant to be understood to the effect* that every case of choroiditis disseminata, iritis serosa, or sympathetic ophthalmia may now be cured without further ado; but *they should be understood* as showing the possibility of cure, *provided* the methods of treatment are developed on the line of principles as marked out in the foregoing pages.

C.—Methodical Suggestions on Iritis, Choroiditis, etc.

" As to the various forms of iritis, especially, it can indeed not appear surprising that a medicament capable of ready diffusion into the iris, and

(169) MERCK'S BULLETIN, 1890; pp. 63-65.

withal possessing far greater antibacterial strength than corrosive sublimate,—should have the power of *injuring pathogenic microbes* seated in that organ!

"The proposition made some time ago by GALLENGA, and approved as a rational one by DEUTSCHMANN,—of instilling strong solutions of corrosive sublimate in sympathetic ophthalmia,—is certainly not so rational as the PYOKTANIN therapy.

"But, if PYOKTANIN can penetrate into the *iris*, there is no reason why it should not be capable of penetrating into the *choroid coat* likewise. Still, it can be of real service only if the morbid process is not yet completed, and if there is no special obstacle in the chorioidea itself, to oppose the bactericidal action; which circumstances, in our present defective state of knowledge, cannot be judged-of with certainty in each case. I can only state that I have found *my former assertions in regard to choroiditis* (170) confirmed in an additional case. In other cases, perhaps, the sclera may be *too thick* to admit of ready passage of the coloring matter; or, possibly, it happened to be exceptionally *thin* in the cases I had. Later on, when our bacteriological and physiological attainments shall have been enlarged, there will probably be means of judging more exactly of the nature of a given case. Then, possibly, a method may be suggested, of making *injections under the conjunctiva*,—to evade the retention of coloring matter by the latter (which retention is no insignificant element in the calculation of the realizable effect). I have so far simply shown the feasibility of procuring results in the directions indicated; while the methodical development of the technique must be regarded as the conjoint task of many investigators, and hence a matter of the future.

"In iritis,—after a larger number of cases shall have demonstrated the correctness of my position generally,—one of the modes of procedure open to experiment will be, for instance, that of *opening the chamber* and introducing PYOKTANIN directly; as, say, in grave purulent iritis and in sympathetic ophthalmia. Of course, *the first trials* will have to be made in cases that would otherwise certainly be lost, but which will still allow of the effects of this treatment being studied.—(The same principle of caution should be adopted also in other diseases; as, for instance, trachoma.)

(170) MERCK'S BULLETIN, 1890; pp. 63-4.

13.—CONCLUDING REMARKS.

"Thus, this entire matter is shown to be still *in statu nascendi*, for Ophthalmology likewise,—though somewhat less so than for General Medicine and Surgery. At first, the effort at demonstrating exhaustively its capacity will give the profession more work than relief; but all the experiences so far gathered,—in a brief period as they were,—justify the dictum that the hopes I have raised were *not* those of an enthusiast. *Practical result will answer to promise*, whenever the NEW METHOD shall have been scientifically perfected by the common labors of those inclining to thorough research and not contented with mere superficial attempts!"

SELECTIONS.

BROMOFORM IN PERTUSSIS.

Dr. LOUIS FISCHER, attending physician to the Children's Department of the GERMAN POLIKLINIK, New York, discusses this subject in the *Medical Record*, 1890, September 6.

[The author prefaces his report by some statistical and historical information on BROMOFORM—alluding, also, to the researches of HORROCH and of STEPP on this anesthetic, noticed in a previous article in this journal (171).—ED. M. B.]

Dr. FISCHER then continues:—"Recently, Professor SENATOR, through his assistant, Dr. LOEWENTHAL, of Berlin, published an article in the *Berliner Klinische Wochenschrift*, heartily endorsing Dr. STEPP'S treatment and recommending its further use, promising to again publish his results. He noticed in some cases a decided benefit as early as the second day of treatment, in others on the third or fourth day, depending on the severity of the case. Vomiting disappeared in the first week of the BROMOFORM treatment. Bronchitis, complicating tussis convulsiva, seemed be benefited also during the course of the treatment. In from two to four weeks children were usually discharged cured. Appetite also was better during the course of treatment. Children with previous morbilli, also delicate ones, experienced equally beneficial results. Some cases had the treatment interrupted by a complication setting in, *e. g.*, morbilli, pneumonia or varicella. Relapses occurred where BROMOFORM was not administered long enough; in some cases sleepiness was observed during the course of treatment. In a case where a toxic dose of $CHBr_3$ was given, the following symptoms were noted: Contracted, pinpoint pupils; small, compressible pulse; pale countenance; cornea not reacting; on auscultation long, deep inspiration; hardly any expiration was noticed; the heart-sounds

(171) MERCK'S BULLETIN, 1889; p. 88.

were scarcely perceptible. The child reacted immediately on giving a hypodermic injection of sulphuric ether."

Dr. FISCHER thereupon (172) describes sixteen cases to show the effect of BROMOFORM in his practice, and adds that the cases illustrate the different conditions of children attended; patients of all kinds were taken at random, although most cases were seen in the Children's Department of the GERMAN POLIKLINIK; several cases were also seen in the NEW YORK POLYCLINIC. Most patients that were treated lived in tenements, in badly ventilated apartments, and were, as a rule, poorly nourished subjects, as are usually most dispensary patients. Several cases with the best hygienic surroundings possible, with excellent nursing, the best of food and strict sanitary regulations, were also attended, and Dr. FISCHER could notice no more benefit than he did in the ordinary class living in tenements. He does not pretend to say, however, that, given the best hygienic surroundings, the best of care, proper dieting, etc., such cases might not, in the long run, be much easier treated, although in fifty-one cases he noticed no shortening of the disease when better food and air were added. In all his cases he made it a rule to urge the mothers or the nurses to count the number of attacks of coughing in a given time, say six, or usually twelve hours, as only by knowing exactly how many times a child coughed could the treatment be regulated. He also had the number of severe and the number of mild attacks counted. In giving BROMOFORM after eating, he refers, in cases of infants, to giving it after nursing; but it made no particular difference whether it was given shortly after feeding or an hour after feeding. In several cases he gave BROMOFORM before meals, and noticed no bad effects from the same, although giving it after feeding was preferable. BAGINSKY, after going into detail about the etiology of tussis convulsiva, sums up by saying that it is an infectious catarrh, caused probably by a micro-organism, which has not as yet been found. There is no question, however, as to the infectious nature of whooping-cough, and children all through the treatment should be isolated from healthy ones as thoroughly as possible. Dr. FISCHER has in all used BROMOFORM in fifty-one cases, and still has several under observation; and thinks there is no question but that *it is the best known remedy* when properly applied. Owing to its discoloration and extreme volatility, he has administered it from dark bottles, or bottles protected from the light and very well stoppered. If the BROMOFORM turns brown, then it contains free bromine and should not be administered.

The *doses* required were the following: For children under and up to one year of age, two to three drops three times a day; children from two to four years of age, three to four drops three or four times a day, depending on the severity of the case; children until eight years of age, four to six drops three or four times a day. The doses were usually increased on the third day, sometimes after the fourth day of treatment, and in very severe cases on the second day of treatment, by gradually adding one drop to the usual dose. The time required for a cure was variable; in some cases ten days of treatment was enough to effect a cure, others required almost four weeks. About seventy-

(172) As summarized by the *Medical and Surgical Reporter*, of Philadelphia.

five per cent. could be discharged cured between two and three weeks after steady treatment, where no other complications existed.

BROMOFORM should be given in a small teaspoonful of water. Owing to its weight it sinks to the bottom of the spoon, and great care must therefore be taken to see that the child swallows the BROMOFORM, and that this does not remain in the spoon. Dr. FISCHER did not experience any difficulty in giving it to children, as BROMOFORM has a pleasant taste and was very readily taken by such patients.

GATHERED FORMULAS.

INDEPENDENT of the TEXT-MATTER.

26 and 27.—**QUEBRACHO and QUEBRACHINE** in Dyspnea.—MARAGLIANO ([173]).

—Mixture.—

Alcoholic Extract QUEBRACHO	10 grammes	[2½ dram].
Distilled Water	200 "	[6⅝ fl. oz.].
Lemon Juice	20 "	[5 fl. dr.].

One teaspoonful during the attack.

—Pills.—

QUEBRACHINE	0.5 gramme [7½ grains].
Pure Extract Glycyrhiza	*enough to make ten pills.*

Four to five pills per day.

28.—**PAPAYOTIN** in Fissured Tongue ([174]).

PAPAYOTIN	1 *part by weight.*
Glycerin	5 *parts by weight.*

Paint the affected parts herewith 5–6 *times a day.*

(173) *Wiener Medizinische Presse*, 1890; p. 591.

(174) *Deutsche Medizinal-Zeitung.*

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   ——Thus being, at once:—*The Best* "Antiseptic" (Germ-Arrester);
   A Perfect "Disinfectant" (Germ-Destroyer) *in the Living Body;*
   The Only Eligible Medicinal Disinfectant;
   ——*Preferable*—in Antiseptic Surgery, Therapeutics, and Prophylaxis—*to Corrosive Sublimate, Silver Nitrate, Carbolic Acid, Iodoform, Creasote,* and *all the other* Substances of similar use,—*as applied to the Human or Animal Body*,—in consequence of both its unparalleled *Efficacy* and its *Innocuousness* 49
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[redacted] Moved by Professional—not Business—Interest. [redacted]

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MERCK'S INDEX

OF

FINE CHEMICALS AND DRUGS FOR THE MATERIA MEDICA

AND THE ARTS.

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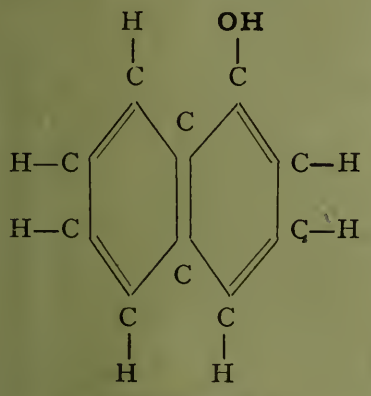
*THE ISOMERIC NAPHTHOLS, and BETOL (BETA-NAPHTHALOL.)

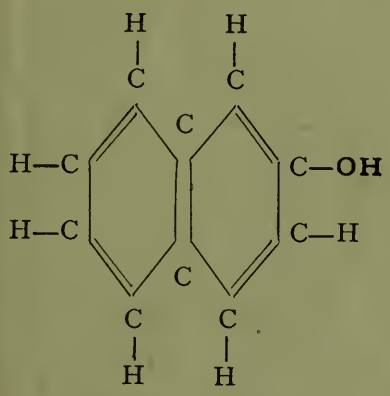
—[*See* "MERCK'S INDEX," p. 97 and 26.]—

Chemical Differences of the Two Naphthols.

NAPHTHOL arises from naphthalene — C_{10} H_8 — in the same manner as phenol does from benzene: by the substitution of a hydroxyl molecule for a hydrogen atom. According to the process employed, the NAPHTHOL is formed either in the Alpha (α) — or Beta (β) — modification, the structures of which are as follows:



(α-Naphthol.)



(β-Naphthol.)

These two NAPHTHOLS exhibit essential differences in their physiological effects, as well as in their chemical properties.

ALPHA-NAPHTHOL is in colorless, monoclinic prisms; melting at 94° C [201.2° F]; boiling at 278-280° C [532.4-536° F]; only slightly soluble in cold water; more readily so in hot water; very readily so in alcohol and in ether. With chlorinated lime, the aqueous solution produces a deep violet color, which quickly turns muddy; with ferric chloride, it forms a white precipitate, which soon turns gray, of alpha-di-naphthol — C_{10} H_6 (O H). C_{10} H_6. (O H).

BETA-NAPHTHOL is in small, colorless, rhombic tabulæ; melting at 122° C [251.6° F]; boiling at 285-290° C [545-554° F]; easily sublimable; soluble in about 1000 parts of cold water and in 75 of boiling; readily soluble in

alcohol, ether, benzene, chloroform, oils, and alkaline liquids. Chlorinated lime colors the aqueous solution yellowish; ferric chloride first colors it green and then precipitates white flakes of beta-di-naphthol. BETA-NAPHTHOL is therapeutically important; any marked impurity is rendered evident in it by its taking a dark coloration in parts exposed to direct light.

Physiological Properties of the Two Naphthols.

ALPHA-NAPHTHOL possesses extraordinarily well pronounced antiseptic properties. According to the researches of MAXIMOVITSCH ([175]), ALPHA-NAPHTHOL in the proportion of 1 : 10,000 of culture-gelatine, prevents the formation of the most various pathogenic microbes; even in the proportion of 0.6 or 0.8 : 10,000, it retards the development of microbes by three to eight days. Similar antiseptic effects were produced by BETA-NAPHTHOL, but twice as much had to be used to produce the same results. Neither of the two substances can really be termed "*poisonous*." BOUCHARD fixes the toxic dose of BETA-NAPHTHOL for a person weighing 65 kilogrammes [143 lbs. Av.], at 250 grammes [8¾ oz. Av.]; whereas MAXIMOVITSCH considers 585 grammes [20 5/8 oz. Av.] of ALPHA-NAPHTHOL to be needful for the same purpose.

Considering, then, the slighter action of ALPHA-NAPHTHOL on the animal system, and its more powerful antiseptic properties, it would seem to deserve the preference over BETA-NAPHTHOL as a disinfectant in or about the human body.

In the arts, ALPHA-NAPHTHOL has been used with much success to cut short the fermentation of cider, and as a disinfectant in fur-tanning. Although we may regard ALPHA-NAPHTHOL as *an ideal antiseptic* in consequence of its extraordinary antiseptic properties and comparative innocuousness,—its disagreeable taste, which is noticeable even in great dilution, stands in the way of any extensive employment of it in the food industries.

In therapy, so far, only BETA-NAPHTHOL has been generally used. Hence, if a prescription calls simply for *Naphthol*, the BETA should be the one dispensed.

KAPOSI ([176]) prescribes a daily application of the following in *Eczema marginatum* (ring-worm):

(175) *Nouveaux Remèdes*, 1888 ; p. 79.

(176) *Wiener Medizinische Wochenschrift*, 1880; p. 81.

BETA-NAPHTHOL 1 gramme [15 grains]; Alcohol 100 grammes [4 fl. oz.]; Glycerin 5 grammes [1 fl. dr.]. — *Externally!*

This is painted on the affected part until a brown crust forms; when the latter falls off, the application is repeated.

In *Psoriasis*, KAPOSI employs the following formula:

BETA-NAPHTHOL 5 grammes [1¼ drams]; Soft Soap 20 grammes [5 drams]; "Cold Cream" 50 grammes [1¾ ounces]; Kaolin Powder 2 grammes [30 grains].—(To make Ointment.)

"HYDRO-NAPHTHOL," a preparation offered in this market, was, after thorough investigation, both chemical and physiological, pronounced by E. MERCK an *impure Beta-naphthol.* This result of E. MERCK's investigations was not shaken by the subsequent retorts of the "inventor" of HYDRO-NAPHTHOL,—E. WOLFF.—GEHE, likewise, in his *Handelsbericht,* concludes, from investigations of his own, that "HYDRO-NAPHTHOL" is an impure BETA-NAPHTHOL, from which pure BETA-NAPHTHOL can be regained through mere recrystallization and decolorization by means of animal charcoal.

Betol, or Beta-Naphthalol.

Similar in sound to "Naphthol" is the name "NAPHTHALOL," whence these two widely different substances are exposed to the risk of being inadvertently confounded. BETA-NAPHTHALOL, or BETOL for shortness, closely resembles Salol in the manner of its composition,—being, likewise, a salicylate. As exhibited by its formula — $C_6 H_4 < \begin{matrix} OH \\ COO.C_{10} H_7 \end{matrix}$ — BETOL is the *Salicylate of Beta-naphthol.*

BETOL is a white, odorless and tasteless crystalline powder, which melts at 95° C [203° F]; dissolves readily in hot alcohol, in ether, and in benzene, but is insoluble in water and in glycerin.

Like Salol, when brought into the intestines, it fractionates into its component parts: Salicylic Acid and Beta-naphthol.

According to KOBERT, (177) BETOL possesses no distinct antiputrescent power in its unfractionated state; but when split up into its components, it manifests such power in a high degree. For instance, its addition to digestive products taken from the ileum prevented the generation of putrid odors for four months.

(177) *Therapeutische Monatshefte*, 1888; *May*

KÖBERT has recommended BETOL warmly in various **Diseases of the Bladder,** especially in *Cystitis gonorrhoica*, and in *Acute Articular Rheumatism.* The remedy is best exhibited in powder form, as follows:

BETOL, 0.3–0.5 gramme [5–8 grains]; Sugar, 0.3 gramme [5 grains]; *to be given four times a day.*

---

* **Cineraria maritima, Juice,** has been previously described in this journal, ([178]) as a **Cure for Cataract,** on the basis of a letter from Dr. R. MERCER; of Port-of-Spain (Trinidad).—The letter in question appears to have been written to Mr. J. H. HART, Superintendent of the Botanical Gardens at Trinidad, and by him forwarded to W. T. THISELTON DYER, Director of the Royal Gardens at Kew, England, who in his turn procured its publication in *The Pharmaceutical Journal and Transactions.*

In view of the wide-spread interest taken in Dr. MERCER'S statement at the time, and which is now revived by *the quite recent introduction of the preparation on the Drug-market*, his letter, as previously quoted-from, is here reproduced in his own language:

"21 Maraval Road, PORT-OF-SPAIN,
"April 13, 1888.

"DEAR SIR:—In the year 1868, whilst holding the Government office of Resident Medical Officer of the Colonial Hospital here, I first observed during a surgical operation some little difficulty in taking up an artery, and soon discovered that it was due to incipient cataract, which subsequently declared itself to be of the "soft lenticular" character, and its progress was slow, steady and gradual in both eyes until 1874, when I visited Europe with the object of consulting continental and London oculists on my case. With a like view I again proceeded to England in 1878, and finally in 1882, when I placed myself under the care of Mr. Henry Power, F. R. S., of Great Cumberland street, who operated on my left eye (that being the better of the two) unsuccessfully. I now returned to the colony with little or no vision in the right eye, the non-operated one, and with a relinquishment of all practice imposed on me by blindness, and from that period until February last I had to be led or conducted wherever I might go. About the beginning of the month stated, while on a visit to friends who had resided for some years in Venezuela, I was asked by them and strongly urged to try the curative effect of a plant called Cineraria maritima, the efficacy of which in removing cataractal blindness was greatly extolled; and they related cases in illustration of its juice possessing specific powers of destroying and absorbing the abnormal conditions of the eye. As I was then

(178) MERCK'S BULLETIN, 1889; p. 3.

totally blind, with nothing to lose, and with more incredulity than hope in the experiment, my friends procured the juice for me, when I commenced its use on the 7th of the same month, in two-drop doses in each eye three times a day, and, mirabile dictu, on the fourth day (February 11) I observed a faint glimmer of light to pervade the right eye. The treatment was steadily persevered with, now hopefully, I must admit, and I continued to experience new and fresh evidences of the favorable action of this potent agent; to be brief, I can now discern figures and even faces under a favourable light, with objects of furniture throughout the apartments, and can even distinguish the hands and tell the hour on a white-dialed watch with my right eye.

"Now for the operated one. The improvement here commenced in the fourth week of treatment by a gradual dispersion of what always appeared to me a curtain of the blackest darkness hanging over and covering two-thirds of the orbit; with this there was always great weight, pressure and occasional pain throughout the organ; but all this has now disappeared by a steadily increasing flood of light and unmistakable vision, so that I can discern my hand and the separation of my fingers when held up before it. All this the result of little more than two months' treatment. Can it be? And yet the incontrovertible fact is before me that a simple, unpretending little plant should outrival and bid surely to accomplish what skill and art had failed to do.

"In its application to the eye it produces no irritability or inflammatory action whatever, beyond a slight burning sense of pain which lasts only a couple of minutes, accompanied or followed by a profuse lachrymal discharge tinged with the colouring matter of the liquid used, whilst its therapeutic properties are solvent, stimulating and absorbent.

"From the scarcity of the Cineraria in this colony, of which I believe there are only three plants husbanded with sacred care, on which I am dependent for my supply, I am compelled to solicit your kind help with a view ot procuring for me a few plants or its seed to propagate a stock on which I may hope to rely for the ultimate completion of a blessing which ranks only second to life itself. R. MERCER, M. D."

---

*Japanese Bibulous Paper—Succedaneum for Wafers and Capsules *in the Administration of Powders.*

Dr. ARTHUR HOFFMANN, of Darmstadt, in a discourse before the HESSIAN MEDICAL ASSOCIATION, reports hereon as follows ([179]):

—This species of paper, which, in Japan, bears the name of **"Usego,"** is of a uniform yellowish-white color and silk-like gloss. On the one hand, it is of such thin and delicate texture that the finest print can be read through it; on the other, it is of astonishing firmness; that is to say, it can be torn but with difficulty.

---

(179) *Therapeutische Monatshefte*, May, 1890.

Dr. ULOTH—Superior Medicinal Councillor at Darmstadt—discovered that this paper consists of the bast-fibers of the shrub *Wickstroemia canescens* MEISN., (a Thymelacea), allied to *Daphne mezereum*, and widely distributed throughout the mountain forests of central and southern Japan.

A piece of the paper, 6 centimetres [about 2¼ inches] square, suffices to inclose an ordinary medicinal powder weighing, say, 0.5 gramme [about 8 grains]. The powder is placed as compactly as possible in the center of the paper; the four corners are lifted and tightly united into a small string by twisting them between the thumb and index finger. Any crushing of the small package and all unnecessary crumbling of the paper are, of course, to be avoided. A small paper bag similar in shape to toy torpedoes is the result of the operation. The twisted portion is then cut off close to the bag,—just enough being allowed to remain, to keep the bag closed.

Treated in this manner, a half-gramme [7½-grain] powder—of Antipyrine, for instance—is scarcely larger than a pea. For administration, it is placed on the tongue, and washed down with a mouthful of water. Arrived in the stomach, the bag unfolds at once, discharging its contents.

The advantages of this method over others in vogue may be shortly summarized as follows:—In the first place, its extreme *simplicity and cheapness*,—properties that might recommend its employment especially in hospitals. Another advantage is, that the physician, by simply adding to the prescription: "*D. ad chart. japonic.*," can have the powders *prepared in the pharmacy*, ready for immediate use, without additional expense.

The JAPANESE BIBULOUS PAPER ("USEGO"), as described, is obtainable from E. MERCK.

Medicaments administered for a test in the above manner have been traced in the urine after as little as half an hour's lapse; while, on the other hand, no traces of the "USEGO" envelope were visible to the naked eye in the stools of the patient,—showing the complete disintegration of its tissue in the digestive tract.

---

* **Mercury Glutino-peptonate, Hydrochlorated.**— This double salt is formed by combining Hydrochlorated Glutin-peptone with Bi-chloride of Mercury. It contains exactly 25% of $HgCl_2$ (Corrosive Sublimate). It forms a white, hygroscopic powder, which is very stable,

and is soluble in both water and alcohol in every proportion. It is not precipitated from solution either by alkalis, blood, or albuminous fluids.

Dr. E. HÜFLER ([180]) has tested this preparation therapeutically, and found it admirably adapted for injections in **Lues.** The solution was made of such strength that the contents of a syringe of 1 cubic centimetre [16 minims] capacity, contained 0.01 gramme [1/6 grain] corrosive sublimate. For this purpose, 4 grammes [1 dram] of the solid preparation were dissolved in distilled water, the solution diluted to make 100 cubic centimetres [3⅜ fl. oz.], and filtered if necessary.

The injections were either hypodermic (between the shoulder blades towards the lumbar region), or intramuscular (into the gluteal parts). The number of injections necessary for a complete cure averaged 20. The action was always a prompt one. Roseola receded after an average of 12 injections; condylomata had disappeared, in the mean, after 15. Papulo-squamous eruptions were no longer discernible after the 17th injection; plaques in the mouth needed only an average of 9 injections for a cure.

From his comprehensive researches, Dr. HÜFLER comes to the conclusion that HYDROCHLORATED GLUTINO-PEPTONE-MERCURY commends itself as a suitable Anti-luetic, because:

1. Certain and prompt in action;
2. Occasioning no pain;
3. Producing but little irritation at the point of injection.

***Urethane**—[*See* "MERCK'S INDEX," p. 148]—**in Tetanus.**—As reported by Dr. ABBOTT, the dose prescribed by him in a very grave case, of several weeks' standing when seen, was of 0.6 gramme [9 grains] *in the day-time* and of 0.9 gramme [13½ grains] *at night,—every two hours* ([181]).

A cure was effected in this case in two days; but, as a matter of precaution, the treatment was continued *for nine days more.*

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(180) *Therapeutische Monatshefte*, 1890; p. 437.

(181) *Neurologisches Centralblatt*, 1890; No. 7.

SELECTIONS.

PARALDEHYD AS A HYPNOTIC. (182)

By F. C. HOYT, M. D.
THIRD ASSISTANT PHYSICIAN AND PATHOLOGIST TO STATE LUNATIC ASYLUM NO. 2, ST. JOSEPH, MO.

It is the misfortune of many new medicinal agents to be forced upon the profession accompanied by a mass of laudatory literature far out of proportion to the merits of the article. It is only after months, and often years, of practical use that the real value of a new drug is appreciated, and then only after experiences disagreeable and often disastrous. With the class of drugs known as hypnotics this is especially true, and, as in the case of PARALDEHYD, the subject of this article, a valuable preparation is often used rashly until some untoward result is observed, when it is dropped as unsatisfactory or dangerous. PARALDEHYD, though not a new agent, yet is, outside of a limited circle, very little known or appreciated. It has for formula $C_6H_{12}O_3$, being of the aldehyd group, and having, in common with most members of that family, a strong, pungent odor, which, in this instance, much resembles ether. It is a colorless liquid, soluble only in an excess of cold water, and, as stated, has a pungent, disagreeable odor and taste, which constitute the chief objection to its use. These are in a great measure overcome, however, by exhibiting it in a menstruum which renders it both pleasant and unirritating. It is usually given in doses varying from thirty to one hundred and twenty minims, and is followed in from twenty to thirty minutes by quiet, refreshing sleep, unattended by any preceding excitement, and lasting from five to eight hours. Its taste and pungency are very effectually disguised by administering it in the form of an emulsion, made as follows:

PARALDEHYD (*Merck's*)	fl. ℥	j.
Pulv. acaciæ	℥	ss.
Tr. quillayæ	ʒ	ij.
Ol. cinnam.	♏	v.
Syrupi	℥	j.
Aquæ q. s. ad ft.	℥	viij.

M. ft. emulsio; one ounce equalling one drachm of the pure PARALDEHYD.

In general practice, where only one dose is to be given nightly, it will be ound that a glass of cold milk will disguise one drachm of PARALDEHYD very effectually. It is seldom necessary to repeat the dose the same night, and, while there is no serious objection to doing so, yet its best effect is obtained by giving a full dose at first. During the last two years PARALDEHYD has been given nightly, at the asylum, and has largely supplanted chloral and other hypnotics. In that time there have been given over five thousand doses, varying from thirty minims to three drachms, and the observations and conclusions of so large an experience justify me, I believe, in speaking with positiveness as to its merits. It has been given by myself and colleagues in all cases

(182) *Medical Record,* 1890; p. 520.

in which a hypnotic was indicated, and by so liberal and extensive trial we have been enabled to select with a degree of certainty those to which it is applicable, as well as those in which it is contra-indicated. The average dose given has been one drachm, and it has, when sleep has been produced at all, acted promptly and efficiently. In marked contrast to the use of chloral and bromides when given daily for long periods, it causes no motor disturbances, has little effect on the spinal cord, exerts its action principally on the brain, and when the patient awakens, leaves him in a refreshed condition, free from nausea, giddiness, or headache. The only ill effect noticeable after a reasonable dose is a strong odor on the breath, which is not perceptible to the patient, and is disagreeable only to his companions. Only after large doses, and then in exceptional cases, is nausea produced, and this is of short duration. A certain degree of tolerance is established, making a small and gradual increase in the dose necessary. The secretions are not affected by it, and instead of causing dryness of the mouth and constipation of the bowels, its effect is the reverse, it having a tendency to produce peristaltic action, which renders it mildly laxative. For this reason it is contra-indicated in cases of dysentery, typhoid fever and other diseases in which gastro-intestinal irritation is a feature. In very large doses it does not affect the heart and pulse other than to slightly decrease both the rapidity and volume of the pulse. Its effect is more noticeable on the respiration, slowing and rendering it very shallow, and, after very large doses, irregular. If a lethal dose were administered, I think it probable that death would result from its action on the medulla oblongata.

It acts nicely and is, I believe, the safest of all hypnotics or aged persons and for those who suffer from organic heart troubles. I have given it night after night to persons who had heart lesions, such as dilatation, hypertrophy, valvular disease, and atheromatous arteries, without an untoward symptom. As it is largely excreted by the kidneys, being recognized in the urine after its administration, it might be contra-indicated in diseases of the urinary organs. Its great value to the asylum physician is its prompt and prolonged effect, its freedom from depressing action, and especially from any tendency to impair nutrition in any way. Its mildly stimulating property renders it extremely useful in the wakefulness and mental anguish of melancholiacs, and it has been, I believe, no small factor in hastening recovery in many of these cases. It is powerless to relieve pain, having little or no effect on the cord, but expending its energy on the cortical brain, hence being *an ideal hypnotic*. To the general practitioner I believe it will prove of great value in all cases of uncomplicated insomnia, such as mental worry from trouble, prolonged fatigue, hysteria, etc.

It is a valuable agent in the sleeplessness following a debauch, and here again its stimulating properties are beneficial. In the insomnia of phthisis, heart disease, myalgic pains of a slight character, and, in fact, in all cases of insomnia not attended by great pain or excitement, it is applicable.

It has been found inefficient in the excitement of acute mania and the periodical attacks of furor in chronic mania. In such cases we were compelled to use a more powerful agent, such as hyoscine. In the nocturnal talkativeness of general paretics it usually

is efficient, although occasionally it will fail. It also is hardly equal to the task of quieting epileptics in the furious excitement to which they are subject.

Its continuous administration has *no tendency to produce a habit*, a danger which lurks in every dose of morphia, chloral, and such drugs.

As a condensed statement of the indications and contra-indications for the use of PARALDEHYD, I have arranged the following synopsis of my experience with the drug:

PARALDEHYD may be given in doses varying from thirty minims to three drachms, bearing in mind that continued use establishes a tolerance, which must be met by a gradual increase in dose.

It is in reasonable doses the safest of all hypnotics, and is especially so in old and feeble persons with heart lesions.

It is not constipating, but laxative, and has no tendency to impair appetite or nutrition.

It can be given in nearly all cases of insomnia, and will fail only in a small percentage of cases. It does not relieve pain, nor will it produce sleep in cases of great excitement, such as occur in mania.

It stimulates rather than depresses, and a low state of vitality is no contra-indication to its use.

It is contra-indicated in cases of gastric or intestinal disorders, and probably in diseases of the kidney.

GATHERED FORMULAS.

INDEPENDENT of the TEXT-MATTER.

29.—**MERCURY IMIDO-SUCCINATE** (MERCURO-SUCCINIMIDE) **in Syphilis.**—VOLLERT. ([183]).

—Intramuscular Injections ([184]).—

MERCURY IMIDO-SUCCINATE	2 grammes [30 grains].
Cocaine Muriate	1 gramme [15 "].
Distilled Water	100 grammes [3⅜ fl. oz.].

Filter!—*Inject one syringeful* [16 minims] *daily.*

30.—**MERCURY THYMOL-ACETATE** ([185]) **in Syphilis.**—LÖWENTHAL ([186]).

—Intramuscular Injections ([184]).—

MERCURY THYMOL-ACETATE	1 gramme [15 grains].
Glycerin	10 grammes [2 fl. dr.].
Cocaine Muriate	0.1 gramme [1½ grains].

Inject one syringeful [16 minims] *weekly.*

(183) *Therapeutische Monatshefte*, 1890; p. 535.

(184) MERCK'S BULLETIN, 1888; p. 51;—1889; p. 6 and 81.

(185) MERCK'S BULLETIN, 1889; p. 5 and 79;—1890; p. 104.

(186) *Deutsche Medizinische Wochenschrift*, 1890; p. 544.

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